DE BOW'S REVIEW.

ESTABLISHED IN 1846.

APRIL---MAY, 1870.

ART. I.—ON THE DEVELOPMENTAL PHASES OF MOSSES AND FUNGI.

To William M. Burwell, Esq.

Sir:

The subjoined extract from a letter of Professor Theodore C. Hilgard of St. Louis, Mo., to M. C. Cook, Esq., a distinguished English Phycologist, contains a summary of the results of the authors researches, continued for more than ten years, on the development of Fungi; as well as of the so-called Fresh Water Algae (the green vegetable matter of stagnant waters, wet earth, etc.,) and many "infusorial" forms, which, though long and frequently suspected, not only of inter-connection, but also of being only pre-germinal forms of higher plants, have still maintained their place in systematic text-books as a separate, though very ill-defined, class of organisms. Professor Hilgard's observations proving most if not all these forms to be capable of developing, under favorable circumstances, into true mosses, have never been published in detail. The facts, however, are verifiable by any one familiar with the use of the microscope, and with inductive observation; they are of very general interest, in view of the important part played by this omni-present "moss-spawn," not only in all natural water, but in earth and air as well.

It is not, perhaps, surprising that some of those who have been concerned in building up an extensive edifice of diagnostic distinctions, and a copious vocabulary of (supposed) generic and specific names, should be loth to admit that their failure to investigate the subject *genetically* may have led them into grave error. To such, and to all interested in the matter, the present summary (though not originally written with a view to publication) may be suggestive of a variety of "straws showing which way the wind blows," with which they have long been familiar. The time has passed when, in inductive science, elaborately observed facts, however conflicting with received tradition resting only upon negative evidence, could be "put down" by merely ignoring or denying them.

It is not a little singular how in this case the *a priori* probabilities have been overtopped and hidden by the diagnostic observation of details. When we see a spot covered by green radical leaves in early Spring, producing at a later season a profusion of a certain flower, we naturally conclude that the leaves and the flowers are genetically related. So when moist spots green with Oscillatorea or Ulva, or gummy with Collima, are later seen to be almost invariably covered with a silvery crop of moss-buds, it would seem natural to come to an analogous conclusion; which has but now been reached, *a posteriori*, by a laborious observation of the same developments under the microscope. The burden of proof properly rests upon those who *deny* the correctness of this, the every-day evidence of our senses. [E. W. H.]

EXTRACT FROM A LETTER DATED OCTOBER 22, 1869, OF PROFESSOR THEODORE C. HILGARD, OF SAINT LOUIS, MO., TO M. C. COOK, OF LONDON.

The results of my very extensive investigations both at home and abroad, have elicited the fact—a fact that ought never to have remained hidden, so soon as any one understood what a Linnean species, or even genus, meant—that all genera of so-called fresh-water Algae (or "Chlorospermae" of Harvey's Nereis Boreali-Americana,) excepting Characeae, are all severally and collectively developmental phases of Bryacdae Hepaticae and Filices; mostly of the two former, since the "pregermination" of Ferns is already understood as such. Harvey strongly anticipated the fact in his

Nereis, as he claims that they are no Algae, but phases of something else, "circuits of generation," or in fact, only time-developments. This fact I have been in a condition to substantiate long before I saw Harvey's Nereis and accidentally, his remark on this point. I had been partly acquainted with Professor W. P. Schimper's excellent "Recherches sur les Mousses" (Strasburg, 1848,) immediately after its publication; it is now in my hands through the kindness of Professor L. Lesquereaux (our chief Palaeobotanist) of Columbus, Ohio, who, together with my brother, Dr. E. W. Hilgard, Professor Chemist at the University of Mississippi, is at present the only one who has received a succinct account of the most ubiquitous and important of these phenomena mostly of bryoid vibrionism and praecellular gerresis of tissues, and their functions.

Schimper demonstrates the genus Conferva, both aquatic and epilimous, to be the filiform, prae-germenial, condition development of Bryanae Professor Sigman Reysseck, of Vienna (Prest. pr. tem. of the R. Swp. Academy of Sciences) has in 1851 repeatedly assured me that his experiments show the (sporangeal) spore of Bryaceae to form into "endless developmental repetitions of Confervae, when bred or alighted in water." Through a rather supercilious remark of (the otherwise so meritorious) Professor Alex. Braun of Berlin, I learned, accidentally, that Rutzing himself upholds that fresh-water Algae are bryoid developments, "many of them having in fact, been known as such long ago," (Richter.) It being entirely unjustifiable that these facts should ever have remained hidden, the experiments not repeated, while the fastidious mania of vagrant nomenclature ran fairly wild in Germany (especially in regard to certain morbid fallacies concerning phenomena of funzoid life,) it became necessary for us, on this side of the ocean to break this "ring of the errors of hereditary erudition;" and to require *evidence*, not opinionated nomenclatures, upon baseless preconceived fictions, ideas not collectively gained from the comprehensive comparative survey or collative and collective synopsis derived from nature, but starting with presumptions or postulates, dictates, as it were, *unto* nature. I therefore availed myself of the small chance afforded at the brief meeting of the American Association for the advancement

of science at Chicago, last year, to give a synopsis of the main results and physiological points ; particularly of the vital properties of the red-flickering, swarming Vibrios which compose the red "eye" or cell-nucleus of the oresceated closterium (Carpenter on the Mier, fig. 84, p. 262,) which circulate within the cell. Also of the spermoid lashes (cilia,) as of Euglena and Gonicien, said single spermatozooid flagelli being of a very compound structure, and when physiologically studied developing the silica-coated Navicula (which also originate from other retrogressive moss-spawn developments ;) while eventually each integral chlorophylline granule (of Euglena, closterium etc.) is seen conditionally, to require the nature of a true limpid, flagellate Vibrio (similar to, but not identical with the fermentative Vibrio.) Certain kinds of these are seen to enter into coatless, natant "glococapsal" bodies, resembling the yolk and white of an egg, where they instantaneously effect a general internal swarming commotion of the chlorophylline granules, and a subsequent different integral arrangement ; so as to constitute the peristatic contractile (green, but "red-eyed" *amoeboid* Euglena, which on shores in the shades casts a root, acquires a membrane, and sprouts a bryoid *moss*. But when in water, e. g. in a vial (without mud) it fades, and acquires that incredible and astounding volubility of substance called "Amoeba" where every granule has acquired the agitative organ of vibrianic life. Hereafter they dissolve into Vibrios, then porrected (probiscislike and slackened) flagellum being gradually lost, shed, and reorganized, by the segregative individual growth of joints into most minute Naviculae.

All these are vouched-for facts, derived from long and arduously continued observation, and evidently corroborative of these of your excellent micro-physiologist Beale. I ventured this explanation (which was applauded by the physiological section of the A. A. A. S.) of the well known vibratile action of digestive or elaborative surfaces and nuclei that in the live or physiological condition, e. g. of the terminal intestinal cell (i. e. lobe or vesicle here destitute of a true bottom) the germinal matter, or circulatory vitalizing Vibrios exsert the epermoid flagellum (a uniform property of *all* cell-life whatsoever,) and withdraw or coil it when dead. I also took occasion to

disclose the accidental mistakes of Professor Agassiz, as to those supposed "new species (about 50) and genera" (about half a dozen) which unhappily occurring in Dr. Salisbury's communication on his supposed "fever-plant" by the specious and overawing suffix of nov. gen. Protterans Ag. (Sphaerocorpus Michel, also Botrydium Waller etc., etc.!—in American Journal Medical Science, January 1866,) have led to innumerable and most preposterous ratiocinations on such matters on the other side of the Atlantic, while also copiously redounding in this. In consequence whereof Professor Agassiz himself has "distinctly authorized me to declare both in private and in public, that he himself knew nothing whatsoever of Dr. Salisbury's views, of whatever nature or merit, nor of the paper, the purpose or the author, (as is evident from the fact that Dr. S. actually and emphatically recognizes the specific unity of those phases of development, wherefor full credit is due,) but that he had only determined some Algae for him."

In a matter of such importance, aggravated bymedical inflictions, I think it is desirable to make full allowance for the good purpose, merit and good sense of all parties implicated, as in all cases of scientific investigation; and to search and find, no less than to expurgate, the odium and damage, in our traditional system, of false diagnosis, not based on the evidence and merit of the case itself. When a public teacher *asserts*, he must be held personally responsible for the proof of his suppositions.

I have not heretofore availed myself of any other opportunity for public demonstration of the above facts; apart from frequent private lectures, I have deemed it sufficient to establish a system of communication with investigators personally conversant with the natural objects; and as science ought to be complete in order to be science at all, and also to avoid all unintentional offense, I have not now published all these disclosures. Let all those who "saw into it," and laughed at certain medical discoveries (such as "chancre-algae"—crypta siphilitica, nov. gen. nov. species Salisb.—*the elastic fibre of the body!!!*) let all these, I say, research, each his own domain, with personal evidential scrutiny. Let all see that we are laboring under a false bias of technical assurance destitute of proof;

and let all who embark on such subjects know that evidence is on hand. which if they will not trouble themselves to acquire by personal examination, will eventually and abundantly recoil on such uncritical teachings!

It is mainly with a view to achieve completeness and a uniform understanding—"as a basis to fall back upon"—that I desire to get as many subscribers as possible for the prospectus (and prospects) you offer. I regret not having more of your schedules on hand for communication to my friends, and I earnestly request you, in the mutual interest of the *case* and *cause*. to send me at least a dozen more, and if possible a few sample illustrations of Genera's, I would also gladly avail myself of any method you may indicate to furnish you both the larger and particularly the microscopic fungi of our neighborhood, many of which, as I will see, are ubiquitous. I put up specimens between thin slips of French plate-glass, fastened with isinglass plaster and glued around; or else between mica-slips. I will also make up, for your personal or literary use, sketches of a great number of fungine developments observed in situ and raised under the microscope.

In hope of a speedy answer,

I remain truly yours

Signed, THEODORE C. HILGARD, M. D.

ART. II.—ORATION OF BEN WADE HAMPTON AT THE GEORGIA STATE FAIR.

HIS VIEWS ON LABOR AND PLANTING.

The oration of General Wade Hampton at he Georgia State Fair, was a splendid effort, and was received with enthusiastic applause by the immense concourse who had assembled to hear him. We make room for that portion of the oration which will be read most eagerly by the Southern public generally:

"There are one or two topics to which I beg to call your special attention, as deserving all the care and thought you can bestow on them, and as tending to that great result we all have in view, the

prosperity of the South. We are essentially an agricultural people, and we must look to this great interest as the basis upon which to build up the permanent welfare of our country. To do this we must use all the means which experience, guided by science, has placed at our disposal. How shall this best be done? The two points which present themselves most prominently in this connection, are, first, the labor by which we cultivate our lands; and, second, the manner of cultivation. The negro is undoubtedly better fitted by his long training, his physical configuration and his adaptability to all the diversities of our climate, to make a more efficient laborer than any other. Especially is this true when the labor is to be performed in the more malarial portions of our country. Our object, then, should be to develop to the utmost his capacity as a laborer. To do this, time is requisite, and we shall have to exercise great forbearance, constant prudence and steady kindness. We must make him feel that his interests are indissolubly bound up with ours; that high prices for our products insure high wages for him; but, on the contrary, that we cherish the kind feelings engendered by early associations and old memories. Let us be scrupulously just in our dealings with him, let us assist him in his aspirations for knowledge, and aid him in its acquisition. Try to elevate him in the scale of true manhood, of civilization and of christianity, so that he may be better fitted for the grave duties and high responsibilities forced upon him by his new position. In a word, convince him that we are his best, if not his only friends, and when we shall have done this, we shall not only have placed our labor upon a sound footing but we shall have gained in the laborer a strong and zealous ally. On this subject I speak not from theory, but experience, an experience which has taught me that the kindest relations can exist between the planter and his former slaves, resulting in mutual advantage to both parties. My old slaves are cultivating the land on which they have lived for years, and there has been a constant and marked improvement in their industry in each year since their emancipation, though they have not yet attained the efficiency as laborers they formerly possessed. I have promised to put up for them a school house and church, and to pay a portion of the salaries of their teachers. Such a system, if generally adopted, would tend

greatly to fix the laborers to the soil, and would, by adding to their content and enjoyment, result in vast ultimate benefit to the landlord. That kiud of treatment, just dealing, and sincere efforts to improve their condition are now without effect upon them is proved by the fact, gratifying to myself, that I am now on my way to Mississippi, by the request of hundreds of negroes, besides my own laborers, to advise them what course to pursue in the approaching election there. I am not of those who believe that the mere possession of the rudiments of education makes a people stronger, better or happier; "a little learning is a dangerous thing," and unless moral education goes hand in-hand with intellectual, the seeds of knowledge will be sown on a barren soil, or will produce but thorns and thistles; but I do believe, that in proportion as you make all labor, other than compulsory, intelligent, you render it profitable. If this is true, we should educate the mind, the heart, and the soul of the negro, looking at the question only in its material aspect and leaving out ot consideration altogether those higher and nobler motives which should prompt us to do so. A longer experience of his newly acquired freedom, and his acquisition of higher intelligence, will teach him, not only his dependance on the whites of the South, but the great truth which no laws can change.

"——in every soil,
That those who think must govern those who toil."

It is our duty to assist him in qualifying himself for his changed condition; time alone can show whether that change has been for his benefit. The South will look with profound interest to the next census to see how freedom has affected the number of this race: for we can tell with absolute certainty what those numbers would have been had no convulsion shaken our entire system. Several years ago I had occasion to collect some date bearing on this question, and they give the following facts and calculations. Taking the results of the census of 1820 and that of 1850, we find the ratio of increase among the free blacks to be 12.48 per cent., of slaves 28.82 per cent. By these rates of increase, there should have been in the United States.

	Free.	Slave.	Total.
1860 . .	48,872	412,996	4,616,416
1870 . .	548,712	5,317,427	5,368,139
1880 . .	617,191	6,849,909	7,467,100
1890 . .	694,216	8,824,052	9,518,269

These calculations showed one or two other significant facts, which as bearing on an exploded system, might as well be placed upon the record to aid in the general summary that will be made at some future day. By these it appears that the deaths among slaves were less than among free blacks, 3½ per cent.; that births among the free were 33½ per cent. less than among the slaves; and that the net increase of slaves was 130.93 per cent. greater than that of the free blacks. These statistics may be valuable as enabling us to approximate what will be, or what should be the number of negro laborers in the South during any year up to 1890, and to ascertain what effect freedom had on the mortality and the ratio of increase among the blacks.

Turning now, from the laborer to his work, we have to consider what system of culture is the most productive—and here I have no hesitation in saying that the system which calls to its aid all the the appliances of skill and science will always, other things being equal prove the most successful. I do not propose to enter into the details of cotton planting, nor to give the best plan for its cultivation, because the same will not apply to all localities, and because time will not permit me to do more than touch on the grand fundamental principles which should govern all intelligent planters The problem for our solution is how can we obtain the maximum production at the mininum cost. We cheapen labor by increasing its productiveness, for while we may, in doing the latter, have to pay higher wages, we receive for the work done larger profits. Our object should be not to enlarge the area of cultivation, but to make every acre cultivated yield to its highest capacity. The labor with which we cultivate one acre producing from 600 to 1000 pounds of seed cotton costs as much as that which would make the same acre cost 3000 pounds. Is it economy to us labor, which is now money, so that it will only make from ten acres what it can as easily make from five? If our laborers cultivate ten acres to the hand,

it is not best to plant only half that quantity in cotton, working our crops under the improved system which experience and science have taught, and to devote the other moiety to grain and grasses? These propositions do not admit of a doubt, and the question then arises, how is the productiveness of our lands to be brought to its highest price? Here, again, I refer you to your own great authorities in Georgia, only saying that the prime secret of success in planting is in thorough preparation and careful culture. A crop that is properly planted is already half made, and its subsequent cultivation is comparatively easy. But in order to prepare and cultivate our land properly, we must use all the means which modern skill and recent science have offered. This skill has placed in our hands improved implements of husbandry, while science teaches us how to use them, what fertilizers to apply and the best modes of their application. It was by means of her labor saving machines that that the North was able to keep up her agricultural and mechanical interests during the war, notwithstanding the heavy drain on her laboring population. England has increased the yield of wheat, four bushels per acre by the use of the steam plough, while McCormick's reapers performs the work of many men in harvesting the golden sheaves. It should be a source of pride to us that these two great labor-saving machines which are revolutionizing the agricultural operations of the world, are the inventions of Southern men; for Bellinger, the inventor of the steam plough was a South Carolinian, and McCormick, a Virginian. If we hope to keep pace with the enlightened farmers of other countries, we must hasten to employ the means that give them success.—Every advantage of soil and of climate is with us, and if we fail in the great race the fault will be ours. Let us then, my brother planters, strive manfully for that supremacy which our kind mother, Nature herself, intended us to enjoy. Let us prove ourselves worthy of their beneficence; let us leave to placemen and partisans the troubled field of politics to seek peace, recreation and happiness in those more congenial, more alluring and more honorable ones given by her.

"No! For the fevered city's glare and noise
Change not your purer scenes and calmer joys,
On the glad fields, if bounteous seasons pour,
In golden harvests, wealth unknown before,
Adorn your homes—with taste and skill impart

New charms to Nature by the help of Art
Teach plants of other climes, and stranger flowers,
To breathe their fragrance on your native bowers,
With fairer herds the dairy's wealth increase;
On growing flocks bestow a finer fleece,
Give to the courser wings to sweep afar
Your country's pennon through the fields of war.
Enclose, drain, till, with nicer hand prepare,
Field, meadow, orchard, with increasing care,
Help, with more open hand, the neighbor's need,
On with the plough, each generous feeling speed
The genial board prepare with fresh delight,
Yet warmer make each hospitable rite."

These are the calm and pure pleasures which agriculture holds out; these are the duties it exacts from its votaries. Our duty to our country demands that we should devote all energies, our hands, our hearts, our souls to the restoration of prosperity; to the re-establishment of law and order; of smiling peace and tranquil happiness throughout all the limits of our beloved South. Let us lift her up from the dust, and show that she has loyal and devoted sons. Let us cling with reverence—reverence made deeper and holier by her misfortunes—to this our native land; let no promise of wealth or advancement tempt us to forsake her. When the barbarian horde destroyed Rome, and her sons in despair and sorrow were about to forsake the Eternal city, we are told that the impending doom was averted by a happy omen. A Centurion passing with his company to relieve guard where the sad concourse was deliberating on the proposed removal, gave the usual word of command: "Ensign, plant your colors; we will remain here." The senators rushing from the temple, exclaimed, "The Gods have spoken; we obey." The populace took up the cry and rent the skies with shouts of "Rome forever!" Let us, my countrymen, as we stand amid our ruins, plant our colors on the graves of our ancestors, and invoking reverently the protection of our God, shout with more than Roman patriotism, with one voice, "The South now! the South forever."
—*Charleston News.*

ART. III.—THE CHAMBER OF COMMERCE OF NEW ORREANS INVITED TO SUGGEST COMMERCIAL REFORMS FOR LEGISLATIVE ENACTMENT.

The value of an honorable and sagacious influence upon the welfare of the South is well illustrated by the following report, making response to enquiries made by a member of the Louisiana Legislature to the Chamber of Commerce. It was spread on the Journal of the Legislature. It is gratifying to add that several bills were immediately introduced to give effect to the suggestions of the report.

To the Honorable the Chamber of Commerce of the City of New Orleans:

The undersigned, a committee to whom was referred a letter addressed by the Hon. Hugh J. Campbell, of the Senate of Louisiana, to General H. T. Hays, a member of your Chamber, asking information upon certain questions of importance to the commercial interests of New Orleans, and giving assurance on the part of the Legislature of Louisiana of a disposition to promote those interests by the practice of such measures as may meet the approval of your honorable Chamber, have had the same under consideration, and respectfully report:

Without deeming it necessary to reply in detail to all questions submitted in the letter referred to, your committee appreciate the general scope of inquiry to be comprehended within the following heads:

1. Are the charges, of whatever nature, upon the trade of New Orleans so excessive as to determine the trade of the interior West to the port of New York?

Your Committee have examined the rate of commercial and municipal charges at this port, and while some of them may be higher than at the port of New York, and although the Western trade of that city has undoubtedly increased within the last decade in a ratio much more rapid than the same trade with New Orleans, they do not consider that this rate of charges in itself drives away trade that

would otherwise seek this outlet. Competition and private interest will readily obviate such impediment. They can not all be regulated by law. The true causes which have produced this diversion of trade from a natural channel, are obvious, and may be to a greater or less extent removed by proper Federal and State legislation.

2. Could the State Legislature justly and properly limit the rates of wharfage, and other municipal charges on shipping, at the ports of the State?

The right to impose a charge for wharfage rests alone upon the conveniences furnished by a corporation or individual, for the exercise of the right of every citizen to go to, and from a navigable water. It follows, therefore, that the charge for the use of a wharf should, legally, be limited to such a rate of assessment upon all the tonnage using it, as will indemnify the builder for the cost of making, maintaining, and replacing the wharf. Any excess above this rate would be illegal, and may be restrained by the courts or by the Legislature.

The rate of charge for the services of any public officer, as also the rates of pilotage for the river, may be regulated by law.

TOWAGE.

There is a natural charge upon navigation, peculiar to the port of New Orleans. It is the necessity of towing sail vessels about one hundred miles against the strong current and around the abrupt curves of the Mississippi River. This obstacle is represented by a charge upon sail vessels equal to nearly one and three-fourths dollars per ton, or an aggregate of about $1800 upon a sail vessel of one thousand tons, entering and departing from the mouth of the Mississippi. This charge enters largely into the cost of river commerce with the city of New Orleans. While it can only be entirely obviated by the universal adoption of steam, it may be modified by legislative action.

3. Can a State appropriation to remove the bar at the mouth of the Mississippi be justified by the public interest?

The national jurisdiction over the Mississippi River in its whole navigable extent, and the responsibility of the nation for the removal of all obstructions to shipping has been asserted by the whole country, directly interested in the subject, as it has been recognized by Congress in the surveys and appropriations for removing the obstacles to navigation. While, therefore, the State may

undoubtedly appropriate money toward this national object, it should do so with the acquiescence and co-operation of Congress, and without any charge on the commerce of the river.

With these considerations, it becomes simply a question; How far it may be the interest of the State to expend the amount necessary for the purpose indicated? Will the advance in commercial and taxable values, resulting therefrom indemnify the State for the expense of removing these obstacles. Your committee do not hesitate to express the opinion that in the present want of adequate outlet for Western and Southern commerce, it would be better for Louisiana to donate a million dollars towards the effectual relief of that commerce than that these obstructions should remain. As an arguments in support of this assertion, we make take the the report of cotton and grain. The proportion of the whole cotton crop exported from New Orleans in 1660-61 was very nearly fifty per cent. The proportion exported last year did not exceed thirty-five per cent. What has caused this decline? Undoubtedly, in part, the opening of more rapid and certain ways of communication between the cotton fields east of the Mississippi and the great cotton markets of New York and Liverpool. The uncertainties of exporting cotton by way of the Mississippi has been shown by the detention of tonnage on the bar in 1867 and in 1869-70. There is, then, an obvious reason why the interior shipper of cotton should prefer the more rapid and certain routes leading to the deep water ports of the Eastern Atlantic cities. To deepen the outlets by removing the bar will tend to relieve this apprehension and restore the large percentage of the cotton crop diverted by this obstacle.

The grain crop of the interior West exported may be estimated at from twenty to sixty millions of bushels annually. The greater part of this crop is shipped from New York. The immense growth of cereals in the United States, and the irregular market demand of Europe, renders economy of freights of the first consequence to the Western farmer. This consideration becomes more and more important as the market value of grain declines, and as the culture is extended west of the Mississippi. Grain cannot be carried from the States of Iowa, Wisconsin, Kansas, Missouri, and the cultivated country west of these States across the Mississippi, and by rail or

canal to the Eastern Atlantic cities, with any profit to the producers. To secure, then, the natural advantages of the Mississippi current, will require that all natural and commercial obstacles shall be removed. Already has the government entered upon the removal of the upper river obstructions. Already has private enterprise established lines of barges, and built grain elevators at all the principal shipping points on the river. The grand obstacle to the exportation of Western produce remains; the bar at the Balize affords but scant seventeen feet of water in the outlet channels to the sea. The exportation of grain requires large, roomy, well framed steamships, fitted for this particular trade, drawing, at the last, twenty feet of water, and capable of carrying fifty thousand bushels of grain. Smaller vessels cannot conduct the grain trade. The experiment has been fully made. An elevator has been erected at New Orleans at a large cost and on the most perfect model. A cheaper rate of freight has been demonstrated on this than on any other competing route. The ancient slander against the tendency of this climate to injure Western products has been refuted, yet, as a consequence of the charges on sail shipping and the want of adequate draught on the bar for the navigation of grain steamers at all seasons, shippers of grain have been unable to compete with shippers of cotton, and have found freights too high to be available. To organize the grain trade out the port of New Orleans will require a line of grain steamers, and for this an increased depth of water on the bar is indispensable.

What would be the least expensive, the least objectionable and most efficient form in which aid could be extended by the Legislature of Louisiana to the removal of the obstruction on the bar?

The most effectual mode in which State aid could be extended, would be by the sale of an amount of State securities adequate to the object. To this it may be objected that this is not the least expensive mode of appropriation. Your committee feel the full force of this objection. Capitalists apprehend that the unlimited exercise of the power of Legislative appropriations will increase the obligations of the State in a ratio much greater than the increase of the taxable values. This must be the only explanation of the fact that a public debt of seventeen millions, bearing an interest of eight per cent, having an average of about six

years to run, and resting on taxable values of $400,000,000, should sell at a discount of more than twenty-five per cent on the par value of a currency itself twenty per cent below the par of the precious metals.

Your committee are certainly not prepared, therefore, to recommend a sale of State securities as the least expensive mode of raising the money to remove the bar without some protective provision. As, however, the means of prosecuting such a work should rest in proportion upon the posterity which will therewith inherit the means of its liquidation, it becomes proper to inquire if the objection stated may not be obviated.

This may, in the opinion of the committee, be effected by submitting an amendment of the State constitution to the people. This amendment should limit the aggregate amount of the State debt due and to be increased before the year 1890 to such aggregate sum as will be within the ability of the State to liquidate. Your committee would suggest the maximum of the debt due and to be incurred at twenty-five millions of dollars. If this provision be accompanied with a legislative obligation to levy taxes for current interest on the debt and a sinking fund to extinguish it, it would, in the opinion of the committee, not only furnish the most unobjectionable and effectual, but the least expensive form in which State aid could be extended. It would also have a salutary effect in appreciating the value of existing obligations of the State.

Having thus replied to the queries in the most succinct and satisfactory manner of which they are capable, your committee will recapitulate the measures, in their opinion, necessary to effect the objects stated.

1. To restrain the municipal authorities within the State of Louisiana from collecting from the river and marine tonnage on account of wharfage, a larger amount annually than will be sufficient to defray the cost of repairing, replacing and extending the wharves and piers erected by such authorities respectively.

2. To regulate by law the charges of all State or municipal officers collectable from the river or marine tonnage of the ports of the State of Louisiana.

3. To authorize the local authorities of the State, to examine and determine the obligations of the State, bearing an interest of —— per cent per annum, payable semi-annually, and redeemable at the pleasure of the State after the term of —— years from the date thereof, to a Board of Mississippi Bar Commissioners, to be expended and accounted for under the provisions of an act to furnish State aid for the removal of obstructions to commerce at the mouth of the Mississippi river.

4. To submit to the qualified voters of the State of Louisiana at the next election of members of the General Assembly, an amendment to the constitution of the State, to the effect following :

That on and after the first day of the regular or special session of the Legislature of Louisiana next ensuing, the date of the next election of members of the General Assembly thereof, and until the first of January, 1890, it shall not be lawful for the Legislature to increase the public debt, interest and liabilities of the State of Louisiana beyond the aggregate sum of twenty-five millions of dollars. Any excess above such amount being hereby declared *ipso facto* illegal and void, and notice is hereby given that neither the public property nor public credit of the State of Louisiana will be held responsible for any such excess, or any part thereof.

That the pilot laws of the State of New York shall be adopted, enacted and made applicable so far as proper to the pilots employed on the Mississippi river and its outlets.

An act to incorporate a towage company on joint stock account, toward the capital stock whereof the State shall subscribe such sum as may be deemed proper, upon such terms as shall be prescribed by law. The said towage company to conduct the commerce of the lower Mississippi at a rate of towage sufficient to pay the expenses thereof, to reimburse the original cost of the line and to replace the same.

Although, not, perhaps, strictly authorized by the scope of inquiry assigned them, your committee will avail themselves of this opportunity to recommend to the Legislature the passage of an act regulating the appointment of flour and other inspectors within this

State as a measure of great consequence to the commercial interest thereof.

Your committee have respectfully to suggest that a copy of this report be transmitted to the honorable Mr. Campbell, and that he be requested to move the reference of each of the several measures herein recommended to an appropriate committee of the Senate, with instructions to report a bill to give immediate effect to them.

Respectfully submitted :

J. H. OGLESBY,
GEORGE A. FOSDICK,
HARRY T. HAYS,
WILLIAM M. BURWELL.

ART. IV.—APPORTIONMENT OF THE NATIONAL CURRENCY.

In the early part of 1863, the Editor of the Bucyrus, O., Journal was a clerk in the Bureau of the Secretary of the Treasury, in the Treasury Department at Washington. He had at the time special charge of matters pertaining to the National Currency bill then pending before Congress.

After the bill had passed he was instructed by the Secretary, Hon. S. P. Chase, to make an estimate of the apportionment of the three hundred millions of dollars of the National Currency under section seventeen of the act which was as follows :

Section 17. *And be it further enacted*, That the entire amount of circulating notes to be issued under this act shall not exceed three hundred millions of dollars. One hundred and fifty millions of which sum shall be apportioned to associations in the States, in the District of Columbia, and in the Territories, according to representative population, and the remainder shall be apportioned by the Secretary of the Treasury among associations formed in the several States, in the District of Columbia and in the Territories, having due regard to the existing banking capital, resources, and business, of such States, District and Territories.

In consequence he made the following report, not as a mathemati-

cally exact distribution of the currency, but as an approximation approaching as nearly to the ratio of distribution as he was able to make.

The Secretary received the report and referred it to the comptroller of the currency, Hon. H. McCulloch.

After the National Currency act had been in operation a few months it was carefully revised and the various sections re-arranged, and, June 30th, 1864, State banks with a capital of over seventy-five thousand dollars and in good standing were authorized to convert themselves into National banks and transact business under the provisions of the act. These State banks were also entitled to a preference in conversions over associations desiring to organize *ab initio*. This necessitated the repeal of the distribution clause as it appeared in section 17, the clause was however re-enacted 3d Mach, 1865, and remains on the statute book substantially as quoted above.

The Census tables referred to in the report, are taken from the preliminary report made to the Senate by the Hon. Secretary of the Interior 19 May, 1862.

The table which was thus prepared shows what should have been the proper apportionment of the $300,000,000, one-half with regard to the reprsentative population, and the other with regard to the existing banking capital, resources and business of the various States, Territories and the District of Columbia. We cull from it, as we have not space for the whole, a few of the most striking facts, as an evidence of the wanton spirit of sectional favoritism with which the distribution was actually accomplished. We will begin with the New England States. Maine was lawfully entitled to $5,415,000, she received $7,682,256, giving her an excess of $2,267,254; New Hampshire should have had $3,312,000, she got $4,394,875, an excess of $1,082,395; Vermont should have had $2,989,500, she got $5,916,800, an excess of $2,297,300; Massachusetts should have had $21,795,000, but got $65,104,670, making the enormous excess of $43,309,670, almost doudle her rightful claims, Rhode Island should have received $4,794,000, she got $12,940,850, giving an excess of $8,146,850,—almost double, as with Massachusetts, her share. Connecticut was entitled to but $7,022,500, she received $18,215,115,

giving an excess of $10,992,615. A simple operation in addition will show that the aggregate of these excessive allowances reached the sum of $68,096,086, or largely over one-fourth of the entire amount to be distributed. Having in this objectionable mode obtained a most unjust advantage in currency affairs, no one can wonder why the people of those six States are so fixed in their hostility to an expansion of the currency for the benefit of the West and South, if, indeed, such a description of currency can be fairly looked on as an advantage to the farming and planting States of the West and South.

Continuing, we find that New York, entitled to $53,483,500, got $76,067,510, an excess of $22,584,010; New Jersy, entitled to $6,690,000, got $9,736,245, an excess of $3,046,245; Pennsylvania, entitled to $26,527,500, got $40,769,220, an excess of $14,241,720; Ohio, entitled to $17,623,500, got $19,076,260, an excess of $1,452,710; Illinois, entitled to $11,838,000, got, but $10,315,835 a deficit of $955,500; Indiana, entitled to $9,516,000, got $11,301,695, an excess of $1,776,695. For this group of States, largely surpassing New England in population, the excess was $42,146,130. Michigan, Wisconsin, Iowa, Kansas and Missouri, all show large deficits in the amounts to which they were lawfully entiled. Minnesota had a slight excess.

Kentucky, entitled to $10,000,000, got but $2,428,470, leaving a deficit of $8,071,530; Louisiana, entitled to $10,581,000, got $1,521,120, leaving a deficit of $9,229,880; Maryland, entitled to $7,137,000, got $9,436,780, an excess of $2,299,780; Virginia, Old and West, entitled to $13,519,500, got together only $4,246,430, leaving a deficit of $9,272,070; the District of Columbia, entitled to $658,500, secured $1,339,500, an excess of $671,000; North Carolina, entitled to $7,546,500, got the pitiful sum of $384,700, a deficit of $7,161,800; South Carolina fared not quite as well for being entitled to $7,566,000, she got $192,500, a deficit $7,373,500; Georgia, entitled to $9,420,500, got $1,239,900, a deficit $8,180,600; Florida, entitled to $955,500, never got a dollar; Alabama, entitled to $7,425,000, got $353,025, a deficit of $7,071,975; Mississippi, entitled to $5,265,000, got $66,000, a deficit of $5,199,000; Tennessee, entitled to $8,766,000, got $1,291,170, a deficit of $7,474,830; Arkansas, entitled to $2,724,000, got $180,200 a deficit of $2,543,800; Texas, entitled to $3,961,000, got $429,535, a defiicit of $3,531,465.

ART. V.—BY JOHN HENRY BROWN—THE TUXPAN COUNTY OF MEXICO.

FACTS AND CORRESPONDENCE IN RELATION TO IT, OPINIONS OF ITS AMERICAN SETTLERS.

In the month of April, 1866, the foundation for American and European settlement in the Tuxpan country of Mexico, was laid. From that time to March, 1869, about fifty American families had settled on the Tuxpan river in different neighborhoods within a distance of thirty-five miles of the sea. Their numbers were still slowly but steadily growing. Their only regular connection with the United States has been through sail vessels to Galveston, Texas, about six hundred miles by sea; hence their increase has been slow.

The claims of that country to American and European emigration, among many points, embrace the following:

1st. That in the absence of good harbors on the Gulf coast of Mexico, Tuxpan has the great advantages of Cape Rojo to the north, southeasterly from which are situated the small islands of Blanquilla and Lobos, which effectually break off the much dreaded northers of that coast and afford secure anchorage in storms. Here it was that General Scott rendezvoued his fleet and army in the heavy blows preceding his attack on Vera Cruz in January and February, 1847, and here, British, French, Spanish and American men of war, as well as Merchantmen, have ever found safe refuge against northers. A little farther down, nearly parallel with the coast and from six to ten miles from it, are found the three banks or islets known as Tanguijo, en Medio and Tuxpan, breaking off the easterly gales. The two latter, opening as crescents towards the main shore, afford perfectly secure havens for the largest vessels in heavy gales. The latter lies in front of the Tuxpan river and greatly protects the anchorage off its mouth from the east, while Cape Rojo, Blanquilla

and Lobos break the sea from the north. Throughout this interior space of six to eight miles in width by twenty-five in length, there is good holding ground and nowhere less than ten fathoms water, (see Blunt's American Coast Pilot and the Marine Charts.)

2nd. The Tuxpan river has an extensively narrow bar, which varies in depth, according to the currents in the river by the annual wet season, from the extremes of seven to eighteen feet—affording perhaps for nine months in the year, ten to eleven feet—and for three or four months, twelve to fifteen feet. Experienced Mariners believe that the frequent passing of Steamers would always insure twelve feet. From the Mouth to Tuxpan, six miles, the river is seven or eight hundred yards wide and perhaps fifty feet in depth. From Tuxpan to the head of tide, twenty-four miles farther inland (i. e. to Tumbadero by water,) there is no where less than eighteen feet. Steam Lighters can always receive and discharge cargo from the largest vessels lying at Lobos or in the Horse-shoe haven off the mouth of the river, conveying to and from Tuxpan, the head of navigation on that river or its short but beautiful tributary, the Rio Gapotal, which is navigable for twenty miles inland from Tuxpan.

3d. The river Tuxpan by a bayou, a small lake, a second bayou and then the larger lake of Zamiagua, all parallel to the coast north, comes within four miles over very low ground, of a navigable connection with the Panuco river at Tampico. A trifling Canal of four miles and slight improvements at one or two other points, will connect the two rivers by steamboat navigation. The Panuco is a noble river, it has constant navigation for steamboats about sixty miles on a direct line to its forks; thence each fork is navigable twenty-five miles farther. At Tampico the river Tamesi comes in from the northwest and affords sixty miles perpetual navigation on a direct line. The inner shore of Lake Tamiagua washes a fertile and healthy country and is very near Mount San Juan, said to be extremely rich in Silver, Copper, Oker and other Minerals. For a trifling sum the whole of this interior navigation can be rendered tributary to the harbors before described as available for Commerce at Tuxpan.

4th. Tuxpan is about sixty miles nearer the City of Mexico than

any other seaport. The route for a railway is believed to be better than any other, though the reconnoisance now being made by the Engineer, Major Robert B. Gorsuch, will throw more reliable light on the subject.

5th. The natural and agricultural advantage of this region, will be seen by the correspondence herewith published. The region included under the general term "Tuxpan country," is bounded on the east by the Gulf, west by the Sierra Madre Mountains, north by the Panuco and south by the Nautla river, a district not far from the size of Kentucky. Tuxpan is beyond all question, the healthiest town on the Gulf of Mexico—has never had Epidemical Yellow Fever and not a case for fourteen years. Its population is 4,962 souls. The Petroleum Mines in the country are believed to be the most inexhaustible yet discovered on the continent, and one of the richest is within one mile of barge navigation on the Tuxpan.

This country, heretofore, has been made known to foreigners only through the press of Texas and a pamphlet published in 1867, limited in its circulation to that State. This pamphlet is now published to meet a wider field, and to re-but erroneous publications made by disappointed or unthinking men on the subject.

The correspondence explains itself. June, 1869.

THE TUXPAN COUNTRY OF MEXICO.

Correspondence in relation to it.—Opinions of the American Settlers.

GALVESTON, April 2, 1869.

Editors Galveston News:

Dear Sirs—I have for two years rested under accruing obligations to you for publishing my communications in relation to the Tuxpan country and the progress of American settlement in it. At the same time it is well known that one or two of the journals of Texas seizing from time to time upon the statements of persons who had been for a short time—often for only a few days—at Tuxpan, and returned with stories entirely at variance with my opinions and statements, have assailed my motives in terms of rudeness and discourtesy calculated, among strangers, to injure my claims to public confidence. Upon this point, conscious of the rectitude of my

purpose and of the substantial correctness of every fact stated by me in the premises, I have felt, and still feel invulnerable alike to the shafts of both misapprehension, and calumny, and have felt, at all times, a serene willingness to trust my reputation to the people of this, my almost native State—pointing back to nearly thirty years devotion to her honor and glory as my title to a fair hearing before condemnation.

But the interests of others, both in Mexico and in this country, are involved and demand some effort to sustain them against the injurious effects of such partial, one-sided assaults. Thus feeling, I addressed to such Americans as could be reached, a short time before leaving Tuxpan, the following seven questions:

First—In what State or States of the Union have you formerly resided?

Second—How long have you resided in the valley of the Tuxpan river?

Third—Taking into consideration your own experience and what you have otherwise learned of the country, what is your opinion of it in the production of corn, sugar, coffee, tobacco, rice, fruits, vegetables and other articles of consumption?

Fourth—What of the growth of cotton?

Fifth—What do you think of it as a country for horses, mules, cattle, goats and hogs?

Sixth—What of the health of the country?

Seventh—From your experience and observation, do you believe the white race—Americans, Germans, English, Irish, etc., can successfully labor at farm work here, especially in cultivating sugar, corn, coffee, tobacco and other staple crops; can white men labor here as comfortably and with as much security in regard to health as in those States where you formerly resided, or say, as in Kentucky, Ohio, Illinois or Tennessee?

In your answers have reference to ordinary American cultivation, and not to the piddling mode of the natives in this immediate region; and as your answers may affect for good or ill the interests of families—parents and children—I respectfully ask the same candor in your answers that you would exercise towards personal friends.

In response to the foregoing questions, I received thirty-two written answers from men actually engaged at farming in the Tuxpan valley, some quite full—others merely endorsing what the more ample answers contained. These written answers come from men who hail from over twenty States of the Union, from Massachusetts to Texas, and who have lived on the Tuxpan from eleven months to three years. From fourteen others I received verbal authority to say that while they had not the opportunity to answer in writing, they fully endorsed the answers of Messrs. Coleman, Mitchell and others, which they read.

These answers are too long to be embraced in a newspaper publication, and with other important information acquired during my three years' residence on the Tuxpan, will in due time be published in pamphlet; when it will be seen that the country is esteemed by its actual bonafide American settlers, who went there to live by legitimate means—and not to squander their means in vain trickery and dissipation—as a far better country than it has ever been described by me, either in your columns or the pamphlet entitled "Two Years in Mexico."

But, in the mean time, and at the request of various old friends whom I have met here, I ask that you will publish a single one of the answers from one of Austin's Old Three Hundred, Mr. Young Coleman, well known from old Liberty to the Rio Grande.

In conclusion, my dear sirs, permit my pen to respond to the dictates of my heart, in expressing the profoundest gratitude to yourselves and other members of the press with whom it was my pleasure to labor in days long gone, and to the many old friends met here, after a separation of eleven eventful years, for the manner in which they have bid me welcome.

Truly, your friend,
JOHN HENRY BROWN.

RIO BUENA VISTA, near Tumbadero, }
February 12th, 1869. }

Major John Henry Brown:

Dear Sir:—In reply to your questions of the 8th instant, I have to say:

First—That I was reared in Maury county, Tennessee, and lived

in Texas forty years before coming here. In the former State I was not a farmer, but during my whole residence in Texas I was farming and stock raising.

Second—I have been farming here two years and have about fifty acres in cultivation.

Third—I consider this an excellent corn country, producing two good crops per year, but susceptible of great improvement as we learn more of the seasons, and introduce plows, cultivators and other implements. For sugar there is probably no better, if as good a country anywhere; and now that negro labor is destroyed, or in process of extinction throughout the world, the fact that white labor can easily and securely grow sugar, coffee and all other productions adapted to this munificent region, gives it, in my opinion, preeminence over any known country where those great staples can be grown. Any prudent, energetic man, capable of labor, can surely and steadily acquire wealth here in sugar culture—of course proportioned to the land in cane. Coffee is a certain easy and almost incredibly profitable crop, and once set, requires but surface cultivation. In the gathering and preparation for market, children may be employed almost as efficiently as adults. A low yield would be at four pounds per tree, 4,500 pounds per acre, but the Mexicans claim six to eight pounds per tree, after five years growth, as a fair average. I planted out in the fall of 1867, 16 months ago, 1000 tiny coffee scions. They are now healthy and beautiful, and some are blowing for a first crop. The capacity of the country for tobacco, rice, fruits and vegetables is so great and varied that many pages might be devoted to its discussion.

Fourth—In regard to cotton I can only assent to what some of my neighbors have already responded to you on the subject.

Fifth—For forty years I was a successful and pretty extensive stock-raiser in Texas. I consider this an excellent stock country. Horses are remarkably healthy and prolific. I have repeatedly bought horses and mules brought here from Texas, poor and broken down, and in every case, without being fed on grain, they have rapidly recovered flesh and vigor. The same sort of stock arriving in Texas from Kentucky or Missouri, used often to die of fever during

their first summer. Cattle do well here—are generally large, fat and prolific, yielding choice milk and beef, and are rarely ever troubled by screw worms, though in the fall of 1867, they were very bad for a short time. There are but few goats, but the country abounds in such herbage as they delight in. I say, without hesitation, that it is the best hog country I ever saw, and I, as well as my neighbors, have cured without difficulty as nice bacon as is made anywhere. I will add, too, that we have here a meadow grass, understood to have come from South America, called, "Sacate del Parra," which surpasses any long forage crop I have ever known. Also, that I have raised a small patch of millet, which grew waist high, and bore full heads, from twelve to fifteen inches long.

Sixth—My opinion is, that it is generally and naturally a healthy country, as proven by all our experience and observation; but, as it becomes settled, farms opened, and comfortable homes established, it will become, of necessity, more healthy and pleasant. All the sickness originating here, so far as I have known, has been caused by exposures that no one need undergo, excepting in opening new farms during the first year by men dependent solely upon their own labor.

Seventh—As to white men working here, I am well aware of the long established belief among writers and learned men that the white race cannot successfully labor in the tropics, and, as a general fact, I accept it as true. But this country, (of which the Tuxpan river is the centre, on the) borders of the temperate zone, washed by the sea, yet checkered all over by hills and mountains, drained by various large and countless small streams, and surmounted in the rear by a mountain range from eight to ten thousand feet high, from which almost daily we get a cool, invigorating breeze, is a wonderful and (in the changed condition of labor in the tropics) apparently Providential exception to all other countries yielding the same productions; and this, too, within seventy hours steam of Galveston, which, with her Kansas road completed, may become the greatest coffee and sugar market on the continent. It is surprising men of sagacity have not seen this. I am nearly seventy years old, but have labored here for two years arduously and constantly, with-

out inconvenience, and in the enjoyment of excellent health, excepting a slight fever of three or four days, caused by imprudence. Other Americans around me—those who come here to make homes and live—have generally had the same experience—many, too, who never labored before. The most industrious have generally had the best health. In short, I unhesitatingly express this opinion, that white men can labor here at farm work as comfortably and with as good health as in any of the United States; and, when once their farms are opened, far more profitably. Settlement, cultivation—the opening of roads and the effect of live-stock in thinning out brush vegetation, all go hand in hand in rendering the country more healthy and pleasant, and, in a region like this, will free it of almost every kind of annoying insect. Very near the sea-shore, probably for five to ten miles, mosquitoes and gnats may always be more or less troublesome, being now considered very numerous; but back of this, as a rule, they are not bad. In some spots they are, at times, annoying, but in many localities none at all. Troublesome insects were far more numerous and destructive in the early settlement of Texas than they are here.

In conclusion, this country has been visited by a few worthy people who, in one way or another, were unsuited to settle in any new country, and a few otherwise respectable men over whom there seemed to have been an inside veto, by which their purposes were frustrated. Some such, to my certain knowledge, left against their better judgment. Faint-hearted men never yet blazed the pioneer path of American civilization. But there have been numerous others out here for a few days, weeks, or months, without a dollar in the world to hire labor—too lazy to work—grasping at shadows to live in idleness—a medley of various shades and degrees—who, on their return to Texas, seemed to be seized with an epidemic for lying and seeing their names displayed in print. Good men have been deterred from their purpose of coming here by such statements as emanated from this disreputable source. But nature made this a great country; intelligent industry will make it the abode of prosperity, wealth and refinement. Such floating scum cannot long deceive the worthy inquirer. To honorable, industrious men—from whatever clime—it is a land of promise; and to the whole American people, with their mighty strides to physical greatness, it stands as

a prospective Egypt to supply their teeming millions with sugar and coffee at less price than any other part of the globe.

Your friend,

YOUNG S COLEMAN,

head of a family.

The foregoing appeared in the Galveston, (Texas) News, of April 4th, 1869.

Below will be found the other responses referred to.

TUXPAN RIVER, February 12, 1869.

Major John Henry Brown:

Dear Sir:—Your questions to us have been received, and we proceed to answer:

First—Mr. Townsend has formerly resided in Georgia, Florida and Texas; Mr. Wilkins, in Tennessee; Mr. Kelly, in New York, Indiana and Illinois; Mr. D. Montague, (aged 69), in Massachusetts, Virginia, Mississippi and Texas; Mr. D. R. Montague, in Mississippi and Texas; and Mr. Albert, in Ohio, Illinois and Missouri.

Second—We have lived in the Tuxpan Valley nearly three years.

Third—Two crops of corn are always made per annum here, and each crop will average about like the crops of the average United States. We have never known or read of a country superior to this in sugar cane, and it requires no cultivation after the first year, because it so covers the ground as to kill all other vegetation, nor does it require re-planting more than once in 20 to 25 years. The farmer has unlimited time in which to grind his cane, as frost never comes, from which small and cheap mills are as available here as the immensely expensive machinery of Louisiana and Texas, where all the grinding has to be done in four to six weeks. The yield per acre, from the Mexican mode of planting, is estimated at from 3,000 to 4,000 pounds of brown sugar.

Coffee, though as yet only in small patches, flourishes well and produces berries of excellent flavor and superior quality, and in American hands must be enormously profitable. Judging by all we can learn of the natives, 4,500 pounds per acre would be less than an average yield. It commences bearing at three years, from the seed, increases till ten or fifteen years old, declines from about the twentieth to the twenty-fifth year, and then ceases to yield. The produce, per tree, after five years old, varies from five to eight

pounds. Nine hundred trees are allotted to an acre. Tobacco does well—so too of rice—fruits and vegetables luxuriate in quantity, quality and variety.

Fourth—We believe cotton will do well in large sections of this region.

Fifth—We regard it as an excellent stock country—for hogs, unsurpassed on the globe.

Sixth—The health of this country, once a family has comfortable houses, is as good as in any of the States in which we have lived—some of us think better.

Seventh—We unequivocally say, from our three years' personal experience and observation—all of us having undergone great exposure—that at out-door and farm work, the white man can labor here, with health and convenience, as many days in the year (we think many more days) as he can in Kentucky, Ohio or any other State. We have, as a rule, had as good health as the same number of people, similarly situated, ever had in any part of the United States. Every new place opened up is at once improved in freshness, pleasantness and freedom from insects. We regard it as a charming country for American or German farmers, and the *only country known* where white labor can successfully and profitably grow sugar and coffee, and thereat certainly acquire wealth. As some who have been in this country and returned to Texas, have grossly falsified, (among other things) in regard to security of person and property, we beg to say, (though not embraced in your questions) that Mr. Townsend has repeatedly traveled alone and unarmed over large parts of this portion of Mexico and to the interior. Many others have gone to and fro, all over the country—to and from Vera Cruz—to and from Papantla, Perote, Orizaba, Puebla, the City of Mexico, San Louis Potosi, Tampico and intermediate points, and we assert, positively, that since our first arrival in this country in March and April, 1866, we have never heard of an American or other foreigner being killed, robbed or endangered by Mexicans, in all the country bounded by the Panuco on the north, the Nautla on the south, the Gulf on the east, and the Sierra Madre on the west, a country as large as an average State of the United States. The only robbing and swindles perpetrated on Americans here, in

the time named, were committed by other Americans, some of whose false statements were quoted by some of the Texas press as authority against this country. We live in the most perfect peace and security. There is not a door lock in our settlement. Our horses roam the woods unmolested. The Mexicans are kind to all well-behaved Americans, and we feel as secure among them as we ever felt in former times in the United States.

DANIEL MONTAGUE, D. R. MONTAGUE,
WM. T. TOWNSEND, J. W. WILKINS,
ALFRED KELLY, W. C. ALBERT,
Late 6th Illinois United States Cavalry.

TUMBADERO, March, 1869.

Major John Henry Brown:

Dear Sir:— * * * I formerly resided in Indiana and Texas, and having been farming on the Tumbadero lands one year, I fully agree with the above answers.

JOHN R. HOBBS.

TUXPAN RIVER, March, 1869.

Major John Henry Brown:

Dear Sir:— * * * Although from Texas, I have been much in Mississippi, Alabama, Georgia, Tennessee, and Kentucky during the late war, and, after being engaged at farming here during the year 1868, I endorse fully the answers above given.

SAMUEL L. TOWNSEND.

TUXPAN RIVER, March, 1869.

Major John Henry Brown:

Dear Major:— * * * I came from Texas, but have been a great deal over various States of the Union. After farming here one year, I agree essentially in the preceding answers.

HENRY TERRELL.

TUMBADERO, March, 1869.

Major John Henry Brown:

Dear Sir:—I have lived all my life on the Missouri river, in the State of Missouri, or in Texas—have been here farming one year—

and I not only concur in the above answers, but regard it as the most pleasant climate for labor I have ever known, and life and property as secure as they were in the United States in the golden days of peace.

JOHN O. SMITH.

RIO TUXPAN, March, 1869.

Major John Henry Brown:

Dear Sir:—During the late war I was more or less in every State from Pennsylvania south, excepting Missouri and Florida—was reared on a farm, and have been farming here one and a half years. While agreeing with the foregoing answers, I am decidedly of the opinion that white men can labor more successfully than in any of the cotton States; and once a farm is opened, families can live better from the soil than in any State of the Union. In all my travels, alone and unarmed, or otherwise and with money, I have never been molested.

BENJ. S. TERRELL.

RIO TUXPAN, March, 1869.

Major John Henry Brown:

Dear Sir:—In answer to your questions, I have to say that I was reared as a farmer in Mississippi and Texas, and have been farming here one year. I assent, unequivocally, to the general answers given you above, and would say much more in favor of the country, did time permit.

EDMUND D. TERRELL.

TUMBADERO, March, 1869.

Major John Henry Brown:

Dear Major:—In answering the foregoing questions, we will say that we were "brought up" as farmers, in Louisiana, and have been actively engaged here at farm work nineteen months, having seen all of the Tuxpan valley within forty miles of the coast. We have read, and approve the answers given you by others, and we believe this is the best and most productive country we have ever seen or read of. White men for three years *have, constantly are, and always can* labor here at agricultural pursuits and enjoy as good health and vigorous constitutions as in the early settlement of any American State. With farms once in production and comfortable houses, we

believe they will enjoy more luxuries, as good health, and make more money in proportion to the capital and labor employed than in any farming country in the world. THOS. H. AVANT.
CLAIBORNE AVANT.

TUMBADERO, March, 1869.

Major John Henry Brown:

Dear Sir:— * * * Most of my manhood has been spent in farming in Texas, but I have spent four years in observation in many of the old States. I fully approve of the answers given by my neighbors to your interrogations, having been hard at work and much exposed in farming here during the past year. My health, even under such exposure, has greatly improved here. My father and mother, both near three score and ten, came here in wretched health of long standing, but have enjoyed far better health than they have for more than twenty years, and seem at least fifteen years younger than when they came here.

PEM. A. ANDREWS.

TUXPAN, March, 1869.

Major John Henry Brown:

Dear Sir:—In reply to your questions, I have briefly to say—that I was reared in North Carolina, lived seven years in Tennesse, and for twenty-five years in the sugar region of Louisiana. I have been farming on the Tuxpan river, within five or six miles of the sea, for twelve months, laboring almost constantly, with excellent health—have twenty acres in the finest sugar cane, and am daily expecting a sugar mill from the U. S. [This mill since arrived and is in successful operation]. I endorse generally, the more detailed answers of Mr. Young Coleman, whose judgment and intelligence as an agriculturist are well known, and moreover believe a man can make, with the same labor, one hundred per cent. more sugar here than on the best lands of Louisiana. I also believe, that a prudent, intelligent farmer here, once he has his farm in cultivation, and trade and commerce established at this port, can make four dollars to one that he could make at the same pursuit anywhere in the United States.

White men can labor here with health and comfort more days in the year than in Kentucky or Tennesee. A. A. ALEXANDER.

TUXPAN, March, 1869.

Major John Henry Brown :

Dear Sir:—One of us, (Mr. R.) was reared in Tennessee, lived twenty-three years in Texas, and has been farming here fourteen months. The other, (Mr. McK.) was raised in North Carolina, has lived in Alabama, Mississippi and Texas, and has been cultivating the soil here nearly two years. He has twenty acres in luxuriant sugar cane, from which he is now making a fine article of sugar. So far as our experience and observation go, we approve the answers of Mr. Coleman. Both of us have labored steadily, with good health. We also endorse fully, the postscript of Messrs. Townsend, Wilkins and others, in regard to peace, safety, and the swindlings perpetrated here by bad, transient Americans. J. M. McKINNEY.
THOS. ROPER.

Answer of Dr. G. Lincecum, who, aside from his high character as a citizen, physician and agriculturists, is favorably known as a Naturalist to the Smithsonian Institute, the Academies of Science of Philadelphia, London and Paris—now in his 77th year.

OPPOSITE TUXPAN, March, 1869.

Major John Henry Brown :

My Dear Sir:—In answer to your interrogatories of February 8th, I respond, that I grew to manhood in Georgia, resided long in Alabama and Mississippi, and twenty years in the richest inland county of Texas,—Washington.

I have been farming on the Tuxpan river, opposite the town, for the past year—have made one excellent crop and have a second crop of corn head high. I have also a plantain and banana orchard of eighteen acres in full bearing, which was on the land when I bought it, from which, aside from its value for shipment, I can perpetually grow a large number of hogs, feed milch cows and, if need be, brood mares.

The answers given you by others, I regard as very fair, though rather under estimates of the country. As to the best crops to make money, I would place sugar first—then coffee, tobacco, rice,

fuits. I think cotton will probably not do well in the vallies near the coast, but that it will flourish in the hilly and mountainous districts a short distance back.

As to health: from the number of old and infirm people who have come here and secured a renewal of health and vigor, this must be regarded as a healthy country—fully as much so as the healthiest portions of Georgia, Mississppi and Texas. And I apply this remark to the lower valley of the Tuxpan, where I am best acquainted. I am now nearly seventy-six years old—was dyspeptic and asthmatic for twenty years before coming here. These afflictions entirely left me on arriving here, and though I have labored nearly all the time, my health has been excellent—in fact, I feel like one with a new lease of life. As to the ability of white men to labor comfortably, there is no doubt, it is a demonstrated fact; and how any man can be lazy in a region which remands labor so bountifully, is more than I can comprehend. With an American population, commerce and a railroad to the interior, no spot on earth promises greater rewards to men and families, in all that renders life desirable.

G. LINCECUM, M. D.

TUXPAN, March 4, 1869.

Major John Henry Brown:

Dear Sir:— * * * Tennessee is my native State, but I have been much over all the Middle, Southern, Western and Pacific States, and for a number of years in different parts of Mexico.

I have been farming here two years, chiefly opening a sugar farm, having now eighteen or twenty acres of very superior cane, from which, as you now see in person, I am making a beautiful article of sugar by means of cheap evaporating press and a one horse iron mill.

I fully approve what has been said by others in answer to your queries and the ability of white men to labor here, and much I regard in a more favorable light than is stated by them. On arriving here two years ago, I bought a small lot of growing cane, to which additions have been made, and am now turning off the third crop of sugar. I have proved, *by actual trial*, that sugar can be made here in the coldest and the hottest, the wettest and the driest months in the year. Taking the year round I can labor here more days in

the year, with reasonable convenience, than in any State or Territory where I formerly lived.

I also fully endorse what is said by Messrs. Wilkins and others, in regard to security of person, and property in this part of Mexico.

R. C. WORK.

TUXPAN, March 4, 1869.

Major John Henry Brown:

Dear Major:— * * * My life, always as a farmer, has been spent in the healthiest parts of Mississippi, Florida and Texas,

I first visited and examined this country in the spring of 1866, and migrated to it fourteen months ago, since which I have been farming.

In regard to your questions I will say that, after seeing the foregoing answers, I regard them as entirely safe and reliable. But I am compelled, in all candor, to say that they fall short of justice to the country in various important particulars:—as, for instance, I regard it, wherever a fair standard of comparison can be made, as the healthiest country for laboring men of which I have any knowledge. But, until we have more time to make improvements, there can be no just comparison with settled countries. Besides, the greatest hardships of emigrants occur in the first year or two. It is this temporary trial which caused many to go back, although comforts, luxury and wealth, were the certain rewards of persevering industry. I pity the families of such faint hearted men. I express the unqualified belief that a farmer can make more produce, more desirable fruits and vegetables, and more money here, than with the same labor in any State or country in the United States. The peculiarities of climate—temperature, rain, &c.,—must all, however, be learned. Those coming hereafter, will have the great advantage of the combined experience of all now here. I came here an established invalid, but my health, under adverse circumstances, has become excellent, and daily my liking for the country increases. I challenge any town in the United States, of the same size (4,962 inhabitants) to show as many men and women over fifty years of

age, as this town of Tuxpan, where there are many natives of the town from sixty-five to eighty—hale, cheerful old people.

Again: the history of pioneering in the United States from 1607 to 1869 may be searched in vain for a parallel to the facts exhibited here. These facts are, that out of from five hundred to six hundred Americans who have settled in, or visited this country since March, 1866—now three years—the great mass being persons of extremely limited means—exposed to many privations and hardships—but two deaths have ever occurred from sickness originating here, one an infant, the other a child of seven years. In the same time numerous old and infirm people have been rejuvenated. In short, I think it is *naturally* the best country I have ever known or heard of, and only needs emigration, a railroad to the interior, and that commerce which would follow, to render it a paradise on earth.

Your friend,

M. M. MITCHELL.

TUMBADERO, March 19, 1869.

Major John Henry Brown:

Dear Friend:—Having read your questions and the answers given you by some thirty of my countrymen here, I can, with entire candor say, that my views of the country coincide with theirs in all important particulars; but for want of time, on the eve of your departure for the United States, having myself just returned from there, I adopt as my own, the answers of my neighbors, Messrs. Young Coleman and M. M. Mitchell, who are known to be agriculturists in the true sense of the word, and as men who never form conclusions without investigation.

As you are aware, I explored this country two years ago, and removed my family here fourteen months ago. My wife, sixty-six years of age and myself seventy, came here in wretched health of twenty years standing, from asthma and other causes. We soon became healthy and felt almost like the days of youth had returned. We have just returned from a hasty visit to Texas and like this country better than ever.

I am a North Carolinian—lived thirteen years in Tennessee and

twenty-three in Texas—always a farmer proud of his calling, and as such expect to end my days here.

Let immigration flow into this country—a railway connection to the interior be established—and the facilities of commerce be opened up, and I do not believe any portion of the globe will offer greater inducements to emigrants or capital. That the country abounds in mineral wealth and is inexhaustible in petroleum there is no doubt. Its forests of zapote chico furnish the best railroad timbers in the world. The people of the United States are deeply interested in this development, for, once reduced to cultivation, this country can supply them with sugar and coffee cheaper than any part of the world, to say nothing of fruits and breadstuffs, dye woods, vanilla, medicinal herbs, roots and gums; and if the Ramie plant proves to be an article of value, this is pre-eminently *the* country for its production.

A. G. ANDREWS.

The following gentlemen all concurred in endorsing the answers of Messrs. Youngs Coleman and M. M. Mitchell, to wit:

Dr. R. M. Collins, a New Yorker, last from Texas, and nearly three years in the Tuxpan Valley. An experienced planter.

Farrell Vincent, a Kentuckian, last from Texas, three years in Tuxpan. A first class Western farmer.

J. F. Wilkinson, from Alabama, eighteen months on Tuxpan river. A good farmer.

James R. Mitchell, from Tennessee and Texas, sixteen months in this country. A successful planter.

Thomas L. Brown, from Virginia and Texas, three years in the country, and a good farmer.

T. J. M. Richardson, from Florida and Texas, three years in the country. An old planter.

P. P. Jarret, from Georgia and Louisiana.

S. Townsend, from Georgia and Florida, two years in the country Always a successful farmer.

P. W. Huddleston, from Tennessee, California and Texas, two years in the country. A man of close observation and superior judgment.

The written answers of these nine gentlemen were mislaid. All of them are farming, and several on a larger scale than any other settlers. Mr. Vincent and associates have imported a large sugar mill with attachments for cutting lumber and grinding grain. Dr. Collins, though long a planter in the South, is a man of scientific attainments, and, like Dr. Lincecum and Dr. A. M, Boyd, considers the country rich in dye woods, medicinal herbs and gums, spices, sarsaparilla, the famous vanilla bean and other valuable products of the forest—besides the immense deposits of petroleum—and mines of silver and other minerals.

Of the foregoing thirty-two respondents, twenty-three are heads of families and nine are single men, but all are engaged at farming.

COFFEE.

The estimated area of the country bounded by the Gulf, the Sierra Madre, the Panuco and the Nautla, is in square miles 22,000, or in English acres, 14,080,000. One half this may be classed as good coffee land; but supposing one-tenth to be devoted to coffee, we should then have 1,408,000 acres in coffee. At nine hundred shrubs to the acre, (seven feet apart each way,) and an average of four pounds per tree (six to eight being the claimed average,) we shonld have in shrubs 1,267,200,000, and in pounds of coffee, 5,068,-800,000, which, at only five cents per pound, is $253,440,000.

These estimates are only given as *suggestive* to the minds of political economists, of what is within the power of ordinary industry, in the second Republic of the continent, within ten days steam of New York, three and a half of New Orleans, and, by steam and rail, via Galveston, within ten to eleven days of St. Louis, Chicago, and the great west. In freight, this coffee would amount to 25,344,-000 bags of 200 pounds each—equal to 2,534,000 tons, or 1,267 ship loads at 2,000 tons each!

SUGAR.

Area in acres, 14,080,000. Taking each twentieth acre, as sugar land, which is less than the vallies of streams, we have acres in sugar, 704,000. 3,000 pounds per acre, according to the best judges, may be relied on as an average, giving in pounds of brown sugar,

2,112,000,000; which at five cents per pound, gives a cash value of $105,600,000; 1,056,000 tons—528 ship loads of 2,000 tons each.

Statisticians may prolong these estimates on a system of small farms, with improved and cheap modes of making sugar, and will find that with free emigration, the facilities of railroads and a commercial mart at Tuxpan, these results would flow as certainly as that gold mines drew population, wealth and refinement to California.

POPULATION OF THE CANTON OF TUXPAN.

Tamiagua,	4,470
Tancoco,	2,039
Temopache,	4,274
Tepesintla,	3,393
Tihuatlan,	1,896
Tuxpan, proper,	4,962
Amatlan,	5,176
Total in the District,	26,210

PART OF CANTON OF TANTAYUCA.

Chontla,	2,782
Ixtlatepe, or Santa Maria,	1,896

ART. VI.—THE DRAINAGE OF THE HAARLEM LAKE, IN HOLLAND.

We have the pleasure of laying before our readers a description of the "Lynden," one of the three pnmping-engines, of equal size, now used to keep the Haarlem Lake of Holland dry. These engines are the largest in the world. Before giving the description, we will say a few words of the peculiar work for which the ponderous machinery was built.

Haarlem Lake, lying in the heart of Holland, between the great cities of Amsterdam, Leyden, and Haarlem, was the scene of a busy inland commerce; but the facilities which it offered in this respect were counterbalanced by serious inconveniences. The lake having a surface of nearly 50,000 acres, while its bottom was only some

seventeen feet below tide water, was tossed by winds into short, "chopping" seas, most dangerous to navigation. Its agitated waves were also constantly encroaching upon its shores, now on one side, now on the other. Under these circumstances, the necessity of removing this inland sheet of water became more and more evident. It was proposed, even two hundred years ago, by the Ducth engineer Leeghwater, and afterward by Cruquius and Count von Lynden; and when, in 1842, it was resolved to pump the lake dry, three steam pumping-engines were commenced, and named "Leeghwater," "Cruquius," and "Lynden," after the three celebrated men who had at different times presented plans for the accomplishment of this vast work.

The lake was surrounded by land, not higher than its own basin, but of which the water, by means of pumping wind-mills, after the old Dutch fashion, was thrown into the lake. This was itself surrounded by levees, called dikes in Holland, and provided, near the city of Amsterdam, with locks, the doors of which opened toward the outside, and gave exit at low-tide to the water, but closed automatically when the ocean-tide rose. In this way the surface of the lake was kept a little above low tide water.

The first thing done, preparatory to drainage, was the excavation of a wide canal, circumventing the lake entirely, for the triple purpose of providing for the navigation which formerly went over the lake, giving exit to the water formerly thrown into the lake by the numerous wind-mills employed for the drainage of the surrounding land, and, finally, receiving the water of the lake itself. It was also found necessary to provide an additional exit for the contents of this canal, the volume of which would become immensely increased as soon as the pumping-engines commenced to throw the lake-water into it. For this purpose, the old mouths of the river Rhine, which had become filled up with sand centuries before, were reopend and provided with large locks, a work only second in magnitude to the digging of the entrance of the Suez canal from the Mediterranean sea. The cause of this filling up of the mouths of the Rhine was, that the river, in repeated inundations at different times, had broken through the dikes or levees which confined it, and made three new channels, one connection through the river Meuse, one through the river Leck, and one entirely new outlet, the Yssel, by which

a portion of its water passed into the Zuyder-Zee. The drainage of the latter is now contemplated, and will involve the complete closing of this mouth of the Rhine. That this will be accomplished admits of no doubt. It must be considered that the Hollanders are acknowledged to be the greatest hydraulic engineers in the world. They commenced the first drainage of a lake in 1440, and continued this labor during the war of independence against Spain, fighting at the same time for their land against the ocean and against tyranny till they founded in the midst of monarchical governments, the republic of the United Netherlands. During the four centuries that have since elapsed, the number of lakes, large and small, drained in Holland, amounts to over one hundred, and one million people now live on the grounds thus reclaimed, which are blooming like gardens in the highest conceivable state of cultivation.

Calculations in regard to the required capacity of the engines for the drainage of the Haarlem lake showed that, after the lake should have been pumped dry, the rainfall of a surface of over 100,000 acres would have to be constantly removed. There were 50,000 acres draining their surplus-water into the lake by means of three hundred wind-mills. There are, by the way, 12,000 wind-mills in constant use in Holland at the present day, for the simple purpose of drainage. They are almost all of colossal size, each lifting from ten million to fifty million gallons of water every twenty-four hours.

There exist still a diversity of opinion among the engineers of Holland whether, in the drainage of the Haarlem lake, it would not have been more economical to depend chiefly upon numerous wind-mills, and to maintain only one large steam-engine as a reserve, to give assistance in the rare contingency of a deficiency of wind, combined with excess of rain. However that may be, the plan of depending in, this case on steam power alone, prevailed; and it was decided to have three steam-pumping engines built, of 500 horse-power each, and hence capable of lifting one thousand million gallons ten feet high in every twenty-four hours.

There existed at that time (1842) only one foundry in the world—an English establishment—where the cylinders required could be cast. They have an interior diameter of 12 feet, with 10 feet stroke. The "Leeghwater" was the first engine built. It drives eleven pumps of 63 inches diameter each, all moving at the same time,

and attached to the upper part of the piston-rod by means of eleven large walking-beams. For this purpose the huge cylinder is placed in the centre of a circular building or tower of heavy masonry, standing in the lake, near the shore. This tower has twelve equidistant openings at the sides, eleven serving for the fulcrums of the walking-beams, and one as a doorway. Half of each walking-beam projects out of the tower into the open air, so that they radiate outward from the circular tower. To the outer extremity of each walking-beam is attached a pump-rod. The pump-cylinders surround the tower; their lower parts are of course plunged in the water of the lake, their upper ends are about at low-tide level, and are all connected with a floor, at the same height, so that when the cylinders overflow at the upward stroke of the piston, the water covers this floor, and by a proper lock is guided into the canal surrounding the lake.

It is easily to be seen that the upward stroke of the piston in the steam-cylinder causes the pump-pistons to descend, and that only its downward stroke lifts the water. Keeping this in mind, the chief problem was to use the steam in the most economical manner. Before these engines were built, there were only five small steam-pumps runnig in the Netherlands, of 30 horse-power each; but their average consumption was 20 lbs. of coal per horse-power per hour; and even in England, where also steam had been substituted for wind in the drainage of a few fens or marshes, the consumption of coal was nearly as great. But it was determined in Holland that in the new engines the consumption of coal should not be greater than $2\frac{1}{2}$ lbs. per horse-power per hour; and this was attained in the following manner:

The steam-cylinder is double; there are, in fact, two cylinders, one anular, 12 feet in diameter, and one inside of this, 7 feet in diameter. Both are secured to one bottom, and covered by one top; but the inner cylinder does not touch the cover by $1\frac{1}{2}$ inches. There are two pistons, 26 inches deep; the outer piston is annular, and has a packing on both sides. Beneath this annular piston a vacum is maintained when working.

It has four piston-rods, connected with the central piston-rod of the inside piston, which is of the usual kind. Thus five piston-rods are attached to a large heavy cross-head or cap, the whole mass

weighing about 85 tons; and by eleven connecting-rods the cap is suspended from the inner ends of eleven cast-iron ballance-beams to the outer ends of which are hung the eleven pump-pistons. The illustration herewith presented shows the interior of the second story of the cylinder-house of the "Lynden" which, as we have remarked drives only eight pumps. There are, therfore only eight balance-beams. The action of the engines is very simple; the steam being applied under the inner piston, lifts both the pistons, the great cross-heads, and inner ends of pump balance-beams simultaneously, and the pump-pistons descend at the same time; by a hydraulic apparatus attached to the great cross-head, the dead weight of the pistons, etc, is arrested at the point to which it has been thrown up by the steam, and time is given the valves of the pump-pistons to close before the down stroke of the steam-pistons is made; then the equilibrium-valve being openend, the hydraulic apparatus is liberated at the same moment, and the steam passing from beneath the small piston, above both pistons, the pressure on both sides of the small one is equalized, while nearly two thirds of the steam acts upon the annular piston against a vacum, and in aid of the dead weight helps to make the down stroke in the steam-cylinder and the up-stroke in the pumps. The use of the two cylinders enables the engine man by judiciously altering the expansion in the small cylinder, to command his work at all times, without stoping the engine to take ont or put in dead weight, as would be necessary for a single-acting, one-cylinder engine, where dead weight only is used for lifting the water. It has frequently occurred that the load of an engine has been added to or diminished by 10 or 12 tons in the course of half an hour, by the action of gales of wind on the surface of the lake. Each engine has two air-pumps of 40 inches diameter and five feet stroke. The steam is cut off in the small cylinder at from one fourth to two thirds of the stroke, according to the load; and after expanding through the remainder of the stroke, it is still further expanded in the large cylinder.

The anticipated economy in consumption of fuel has been realized; when working with the net power of 350 horses, the average consumption is 2¼ lbs. of best Welsh coals, or seventy-five millions duty with ninety-four lbs. of coal; and on a late trial, the "Cruquius" and "Lynden" engines were found to do a duty of eighty-seven millions.

To compensate the district of Rhineland for the loss of 45,230 acres of the boezem or catch-water basin, a steam-engine of two hundred horse-power, driving ten large scoop-wheels, has been erected at Sparndam to lift the water over the tide in the Y, or base of the Zuyder-Zee, where the rise is, on an average, only seventeen inches. This engine has discharged 30,000,000 tons of water in fifteen consecutive days. When the state of the lake permits the "Leeghwater," "Cruquius," and "Lynden" engines to work freely, they discharge, on an average, 2,000,000 tons in twenty-four hours, and they are capable of doing this down to their full depth. In the month of June, 1849, the three engines discharged 60,000,000 tons of water, and lowered the lake one foot; between the 1st of May and 1st of December, they had lowered the lake five feet, and by the autumn of 1850, dry land appeared.

The "Leeghwater," "Cruquius," and "Lynden" engines were contracted for jointly by the Hayle and Perran Foundry Companies, Cornwall, and were manufactured and erected under an able director.

The writer of this article was present at the trial of the first engine built, the "Leeghwater," in 1846, and remembers vividly the striking action of its huge cylinder, which lifts rapidly the enormous weight supported by five piston-rods, in little more than a single second, through a distance of ten feet; the eleven walking-beams moving at the same time and the pump-pistons descending. Then it rests for one or two seconds, and by the admission of the steam above the piston from below, and by virtue of the vacuum under the exterior annular piston, the steam piston-rod starts slowly down with accelerated motion, while the eleven pump-pistons, each over five feet in diameter, majestically rise, and bring up eleven columns of water, which overflow the floor and find exit at the locks. We describe this specialty, as it was the opinion of many hydraulic engineers that, notwithstanding the excellence of the steam-engine, great mechanical loss is sustained through the necessity of overcoming the momentum of such large masses. The enormous body of water flowing below toward the pumps comes to perfect rest after every stroke; and, moreover, the counterpoise, at least equal to half the weight of the water lifted, has to be put in motion alternately,

besides the weights of the piston itself. Of course, the latter is unavoidable; but it was argued that there is a natural advantage and economy in a constant stream of water, and a great disadvantage in these spasmodic discharges every fifteen or twenty seconds, and that if steam and not wind were employed, wheels, either on the paddle-wheel or turbine principle, would be more economical. No engineer nowadays would object to the principle of employing a counterpoise, which is known as the Cornish plan; but the supposed disadvantage of the agitation of the water is better founded in fact. Yet, as a whole, the economy of these engines will be scarcely surpassed by any other approaching them in size.

The greatness of this undertaking becomes still more striking if we take into consideration that the average level of the lake was five feet below high-water in the North Sea, and that, having a depth of fourteen to seventeen feet, it contained (including the additional quantity of rain and infiltration during the draining) not less than 200,000,000,000 gallons.

The greatest quantity of monthly drainage, since the lake was pumped out, has been 1,000,000,000 gallons; and the average annual surplus of rain water, etc., 1,500,000,000 gallons, to be lifted, on an average, sixteen feet.

The original appropriation made for the drainage by the States-General of the Netherlands was ten million florins, or four million dollars in gold; and the expenses conformed with remarkable closeness to this estimate. As nearly 50,000 acres were reclaimed, this makes only an original cost of $40 per acre for land as productive as any on the globe. Additional expenses for the construction of roads, ditches, etc., increased the cost to about $50 per acre. The land is now worth many times that amount. Several villages dot the shallow valley, in the centre of which is a little low hill or eminence, formerly an island in the lake.—*Manufacturer and Builder.*

ART. VII.—LAST DAYS OF THE CONFEDERACY.

BY HON. W. S. OLDHAM.

CHAPTER V.

As soon as our friend the Colonel had completed the transfer of his cotton from the wagons to the steamboat, we mounted and rode home with him. We remained with him for three days, waiting for the necessary preparations for our swamp voyage. That evening he employed one of his neighbors to build a boat for us, upon which he immediately went to work. He supposed that he could have it ready in three days. As it turned out the Colonel was able to do better for us. He was under the necessity of visiting Tchula again, on the next day, and while there, bought, a splendid yawl from the steamboat, lying there, to be loaded with cotton. He had it put upon a cotton wagon and hauled home. This boat, he presented to us, in which to make our voyage, and a most capital and safe boat, it proved itself to be. Still we were not ready to be off—a number of other preparations, remained to be made—our friend set to work, and on Thursday evening, our out fit was complete.

Before proceeding with the variation, of the succeeding events of our journey, it will not be out of place to note, some of the rumors, we heard, and some of the things which we saw, while resting, on the high-lands, and preparing for our journey across the expanse of water before us.

After the surrender of the Departments and Armies east of the Mississippi, there was a great feeling of anxiety expressed by all the people with whom we conversed for the escape, of the prominent Cofederates engaged in the civil service of the country, and especially in regard to President Davis. The condition of those engaged in the military service was defined by the terms of the surrender. The

strong ties which had existed before the war between the officers of the old army of the United States, had not been entirely severed by the war. Since its close, evidence of the continued existence of those sympathies had been manifested in numerous instances, in a shape which proved quite satisfactorily, that the officers of the Federal army, would exercise an influence, which would afford future protection to those of the Confederate army. The condition of those who had been engaged in the Confederate civil service was quite different. They as a class, were by the Yankees charged with the responsibility of the war and its consequences. Towards many of those Confederates. the now victorious and triumphant Northern people had been exceedingly bitter and vindictive. The largest number of those persons were in Virginia, and scattered through the States east of the Mississippi at the time of the surrender of our armies, which was so sudden and unexpected as to take them by surprise, without having prepared the necessary means of personal safety. It was reasonable to conclude, that the Yankee authorities were actuated by a double motive to capture them, the first to gratify the vindictive feelings of passion and malice, the second to prevent them getting into the Trans Mississippi Department, where there were still from sixty to eighty thousand Confederate troops who had not yet surrendered, and where the war might still be prolonged for a considerable period of time.

The greatest anxiety was felt for the escape of President Davis, and that anxiety gave rise and evidence to many unfounded rumors. It was confidently asserted that he had already crossed the Mississippi river, and that a friend in Mississippi had received a letter from him, written forty miles west of the river. It was said that he had traveled *incog*, in company with General Hood and his staff. I was aware that that statement was unfounded, as I had been three days with General Hood, at Chester, South Carolina, and had again seen him as he passed through Newnan, Georgia, and knew that the President was not with him on either occasion. He could have assumed no disguise under which I would not have known him. It was unfortunate that President Davis did not assume some such disguise, and adopt some such mode of travelling and thereby avoid

capture, and the painful humiliation and atrocities to which he has been subjected by his savage enemies. It was a remarkable fact, that amongst all the functionaries, of the Confederate Government, who attempted to get away, all succeeded except Mr. Davis, and those who were traveling with him.

I have since met with many of them, and have heard them relate the shifts and devices to which they were forced to resort, and their "hair breath 'scapes, by flood and field." Many of them were thrilling, and romantic in a high degree, frequently mixed with the ludicrous.

While waiting for the completion of our arrangements for the continuation of our journey I saw the first evidences of the demoralization produced amongst our soldiers, by the cessation of the war, and their being relieved from the restraints of military subordination and control. In the section of the country where I then was, there were a number of Confederate soldiers, said to be mostly Texans, who upon the surrender of General Taylor, disbanded without receiving parols. They were now traveling through the country hunting up property, which they took by force, whenever and wherever they found it. They took all the cotton they could find belonging to the Confederate Government, whether it had ever been delivered to an agent of the Government or not, and whether the planter by whom it had been grown had been paid for it or not. They also took by force the wagons, teams, and drivers of the planters, or in their language they "pressed them," and had the cotton hauled to the steamboat landings where there were speculators in that article. I saw several of the men and conversed with them. They said in excuse for their conduct, that they had served, as soldiers in the army, during the war for eleven dollars per month —in Confederate money—that what had been paid them was worthless, and that a considerable amount had never been paid to them—that what they were getting of cotton and other public property, would not compensate for what was justly due them—that if they did not take it, it would remain in the hands of persons not is much entitled to it as they were, or would fall into the hands of the Yankees as part of the spoils and plunder resulting from the

subjugation of the country. Besides they said they were a long way from home, without the means necessary to take them there, or to enable them to procure the necessaries of life after they should get there.

I confess that the argument was quite plausible, and if they had in all cases, limited their spoilations, to property clearly and strictly Confederate I was not disposed to gainsay it. But when men assume to be the judges of the justice and amount of their own claims, then proceed in person to enforce the payment of them and to decide the right of property which they may determine to hold liable, the temptation becomes too strong for poor human nature. In such cases, every claim made is decided to be a just one, and all suspected property, however unfounded the suspicion, is held liable for its payment. In the very commencement of those acts of lawlessness in the neighborhood in which I then was, I heard of several cases, in which the property of individuals was forcibly taken, under the pretence that it belonged to the Confederate Government.

Such examples of lawlessness soon become precedents, for the most unblushing and open robbery. Already the country was filled with men who had deserted from the army, and who had been concealed from one to two years, who were now gathering public property and levying forced contributions upon private individuals, to compensate themselves for the time they had lost in not serving their country. This demoralization and lawlessness was more strikingly exemplified after my arrival in Texas. It was the legitimate consequence of the fact, that the military had completely overridden and superseded civil government. The Confederate military rule was at an end, and the Federal had not yet occupied its place. The country was without law or government. All was chaos, and anarchy and licentiousness prevailed.

Since I had been traveling through the country, I had closely observed the conduct and deportment of the negro population, and had made frequent enquiries of their masters as to their general demeanor. At no time before the war had I ever seen them more obedient, or more cheerful in the performance of labor. They appeared in no wise elated, at the prosperity of emancipation then

at hand. It appeared to concern them but very little. I conversed with many of them upon the subject. Many of the thoughtful and intelligent regarded the proposed change of their condition with dread. In truth the war developed the important fact, that the great mass of the negroes were contented and happy in their condition of servitude, and preferred their homes with their masters. With all the facilities that presented themselves for their escape to the enemy during the war, the numbers that took advantage of them were comparatively few. And even when their credulous and susceptible natures, were subjected to the false promises and the arts employed by the cunning of the Yankees, thousands refused to leave their homes and follow the enemy. Men in the South who had not thoroughly studied and did not perfectly understand the negro character, as well as the people of the North, were astonished at the fact, that during the war the negroes did not rise in insurrection throughout the country.

While waiting for our arrangements as before stated, I learned some startling facts, in regard to the extent of the desertions in the Department commanded by General Taylor. I learned that at the time of his surrender he had but eight thousand men present for duty in his whole department, and that in two weeks after the surrender, sixty thousand able bodied men presented themselves to receive paroles. The officers in such cases endorsed across the parole in a bold hand the word "*Deserter*." Many of those men had been reported as dead or as prisoners in the hands of the enemy. Thus fifty thousand of the men paroled in General Taylor's department, men who claimed to be freemen and to love liberty, had basely deserted their country's standard and its cause, and the post of duty, and permitted that country to be ground under the heel of the conquering oppressor. Had those men possessed the courage and patriotism to have returned simultaneously to their commands they could almost instantly overwhelmed the enemy or driven him from the department.*

* Such strictures are quite harsh. These men might have retorted that the government under which thay fought had not been able to clothe, feed, arm, and transport them. They might have complained that there was a very large class of exempts, and that even the Confederate Congress had its faults. Controversy and imputation are alike unprofitable, and may be unjust to both the Civil and Military Departments of the Confederate Government. The patriotism of the one and the valor of the other, should protect both from censure. [ED. REVIEW.]

At length our preparation was complete, and everything ready for our departure. On thursday evening, we rode down some ten miles to a plantation in the bottom, about two miles distant from our proposed point of embarkation. Our friend to whom we were under so many obligations, rode down and remained with us during the night and the next morning until he saw us afloat. Our boat had been sent down before us on a wagon.

The next morning we went into the swamp by a road, about two miles until we came to the water. In a short time a man who was to serve us as a guide or pilot, to his home, about twenty-ffve miles distant, and on the west side of the Yazoo river, arrived. He was accompanied by another man who was going to the same neighborhood. On the next day we would be under the necessity of obtaining another pilot. It was an utter impossibility for us to make our way to the Mississippi River without one. And now bidding adieu to our friend, with the expression of lasting gratitude for his kindness, we took our seats in our yawl, and shoved off from land—with our faces westward, towards the mighty deluge before us.

The Mississippi River was higher and the swamps more deeply submerged, with but one exception. The timber and undergrowth in the swamps were so thick that we were obliged to pursue the channels of the bayous, or the openings made by the roads, both as a means of making our way and to avoid getting lost. Beside the banks of the rivers, and many of the bayous, for several hundred yards back in some places, were highlands which were not overflowed. We therefore had to look out for places at which we could pass from the swamps into the rivers and bayous, and again out of them into the swamps. The water marks upon the timber indicated that the water had already fallen eight or ten feet, in consequence of which, as will hereafter appear, we were frequently put to considerable difficulties and labor in passing our boat across those narrow isthmuses. We pursued an opening through the timber made by a road, for a mile or two, and entered a deep bayou, which we ascended for some distance and then turned through the open woods, in order to strike a plantation on the Yazoo River, through which a sluice ran from the river into the swamp. Our guide soon

discovered that we had missed our way. We changed our course, the woods soon became filled with undergrowth, which became thicker and thicker, and finally terminated in an impenetrable cane brake. We were employed two or three hours in beating around the cane brake, but eventually found the plantation for which we were aiming. The water in the shute from the river had become so shallow that it was necessary for us to get out of, and haul our boat up, the channel to the Yazoo, about eight hundred yards. The stream was broad and the current swift, and we floated down it with great rapidity. We soon heard the puffing of a steamboat, which was coming up the river. Not knowing the character of the craft, whether a gunboat, transport, or trader, we concluded to keep out of its sight. Presently we saw the smoke, as the boat was rounding a point below, when we quietly slipped out of the stream until she passed us. Had she been a gunboat or a transport, with Federal soldiers, and we had been observed, it is probable that under the orders to permit no passing to the Trans-Mississippi Department, we would have been taken on board. About sunset we came to the place where we were to leave the Yazoo. We entered the mouth of a bayou, and turned up the stream. It soon became dark, and the bayou was filled with honey locust bushes, with their tops eight or ten feet above the water. We could not see them, and consequently we frequently ran into them and got severely scratched. We finally had to abandon our boat, take the road, which was not overflowed and walk about three miles to the house to which we were aiming to go. We arrived at the house of a Mr. Martin, the father-in-law of our guide, and staid all night with him.

ART. VIII.—COTTON MANUFACTURES.

We publish several documents which ought to open the minds of Southern people residing in the upper sections of the Gulf States to the immense loss sustained by the exportation of cotton unmanufactured. A very few figures will impress this fact. Of a stock of 2,392,254 bales, one and an half millions were exported foreign. Northern mills spun 767,512 bales or 32 per cent, and Southern mills 64,998 bales or about two and an half per cent.

When we reflect on the immense addition to the value of our crop to be imported by the employment of machinery and labor, we really deem it a subject of paramount importance to every Statesman. We have here preadded a calculation to show the quantity with which this interest may be organized. There is, however, a further tax which should be taken beyond the manufacture of yarn or course white goods—it is the manufacture of prints. This will require a little attention, but is within the reach of any people who can print a newspaper, which is exactly the same operation. We add, therefore, an explanation of calico printing, which will be fouud interesting and instructive. Ed. Review.

Below we give an extract from a paper read by Col. J. B. Palmer before the North Carolina State Agricultural Convention, held at Columbia last April. This is an estimate of a mill with 4,080 spindles ring traveling frames.

Number of square feet of flooring, 10,200; amount of No. 20 yarns manufactured for spindle, eighty-seven pounds. Total amount of No. 20 yarns manufactured in mill, 354,960 pounds. Cost of first class machinery, with all the latest improvements, viz: One large cylinder cotton opener (English); one three cylinder opener, with one beater (English); and double lap machine (English); ten self-stripping thirty-six inch cards, with two R. W. heads, troughs and belts; two drawing frames and cans; one English slubber sixty spindles; two English jack roving frames, one hundred and twenty spindles each; twenty ring traveler spinning frames, two hundred and four spindles each; fourteen reels, traverse grinder, slide rest, card clothing, governor, turbine wheel, cotton scales, bundle and bale presses, shafting, belting, bobbins, transportation, putting up machinery, findings to commence with, etc., $43,000; building, including houses for operatives (estimated by an experienced contractor), $7,000; total, $50,000. Such a mill will give employment to eighty-seven operative, and will consume eight hundred and eigthty-seven bales of cotton, weighing four hundred and fifty pounds each. Estimated net profits on productions, if sold at cost of North-

ern production $17,748. No estimate is made of the cost of water power, as that would depend upon location, size and nature of stream.

These estimates are for a yarn factory, and intended for such establishments as should be found in almost every neighborhood. To manufacture cloth additional capital is required and greater profits accrue. It will be seen that a clear profit of thirty-five per cent. is shown upon the money invested, with the products of the factory sold at the bare cost of northern manufacturing. Let us examine further.

Standard cotton cloth, such as Indian Head, sells at eighteen cents per yard at the factory, and one pound of yarn makes three yards of cloth. The total cost of making the yarn as shown by estimates in last number is thirty cents per pound or $150 per bale of cotton weighing five hundred pounds. The cost for turning to cloth is not over fifty per cent., giving us the cost of one bale of cotton manufactured as $225, which at the northern manufacturing cost would sell for $270, showing an additional profit of $45, or twenty per cent.

The necessary house room for the number of spindles given above and the looms for turning the yarn into cloth, would, if constructed of brick and fireproof, cost twenty-five thousand dollars instead of seven thousand. The looms and additional machinery would make the capital required ONE HUNDRED THOUSAND DOLLARS to start a cotton factory which would manufacture into cloth twelve hundred bales of cotton per annum, which would return a profit of at least forty per cent. on the money invested.

We add from the Mechanic and Builder an explanation of calico-print designing by the pantograph. It is probable that but few of the ladies who wear calico have a realizing sense of the talent and the skill requisite to produce the beautiful patterns which are characteristic of this kind of cloth. This branch of calico-making may justly be termed a fine art. The qualifications needed by the designer are of almost as high an order as those which make the successful portrait or landscape painter. It is important that his designs should be chaste and true to nature; for he is not entirely free from responsibility as an educator of the public taste.

The process of the designers art is as follows: He first selects some form in nature, as a rose or a tulip, with the accompaniments of leaves and branches, and the colors in which each part is to appear; or he makes up a design which is purely ideal, and then proceeds to draw out his plan upon paper. The design is drawn and colored just as it is intended to appear when finished, and of the exact size which is to be printed upon the cloth. The design is then drawn upon paper nine times larger than the orignal. This process is termed sketching, and consists in drawing upon white paper with soft lead, or a preparation of lampblack, the outlines of the figures to be printed. The design thus sketched upon paper is laid flatly upon a plate of zinc, and the lines of soft lead or lampblack are readily transferred by a slight pressure to the surface of the zinc. An

engraver then cuts the design upon the zinc, following with a sharp tool the tracing of the lines up upon its surface. The design of course, appears cut in grooves of nine times the size of the original drawing.

Now comes the most interesting part of the manipulation, technically called tracing. It consists in tracing the figure that is on the zinc plate upon the surface of a copper cylinder. Copper cylinders of five and six inches in diameter, and about three feet in length, are prepared by being ground perfectly smooth and even by means of polishing-stone. The surface of the cylinder is then smeared evenly with wax, and the design is traced on the cylinder in the wax by means of diamond points.

Only those parts of a design are traced upon one cylinder which are printed in a *single* color. There are as many printing cylinders required as there are colors in the pattern; for example, the pattern may be a rose with leaves and branches, the flower done in light and dark red, the leaves in green, the ribs of the leaf in black, and the branches in chocolate. In this case there are five different colors, which will require five different engraved cylinders. The leaf, perhaps occupying a space equal to one sixteenth of a square inch, will require no less than three colors, which will indicate the necessity of great skill in arranging the different parts so that one may not interfere with an other when the colors come to be deposited one after another by so many different cylinders upon the cloth.

After the whole design is traced upon the copper cylinder in the wax, the cylinder is slowly revolved in diluted hydrochloric acid, and the lines traced by the diamond points are acted upon by the acid, and the design is engraved upon the surface of the cylinder, all the parts being protected from the action of the acid by the wax, except where the diamond points have scratched it away. This process is termed etching. The acid is allowed to eat in about the one sixteenth of an inch in depth. When sufficient of the copper is dissolved, the cylinder is cleaned of its coating of wax, and, if no imperfections, are discovered, it is ready for printing.

ART. IX.—WHERE THE LUMBER COMES FROM.

BY GEORGE S. KAIME.

From the Western Monthly.

When we see the large amounts of lumber in every city and considerable town in our Great West; when we see boat-load after boat-load, and rafts without number, moving hither and thither on our lakes, rivers, and canals; when we see the car-loads upon our railways and the wagon-loads upon our highways; when we see the miles and miles of fence, crossing and re-crossing, in every direction, our almost boundless prairies, and the buildings, newly erected, half completed, or just begun, in every populous city, growing town, and thriving

village, from the lakes to the mountains;—when we see all these, we are led to the inquiry: Whence comes all this? Where are the vast forests that feed this consumption?

A close investigation will only increase our wonder; for, instead of millions, we find hundreds and thousands of millions of this indispensable pine lumber. Where we thought there was nothing but a wilderness, we find a business colossal in its proportions; we find hundreds of men felling the magnificent pines, and transporting them to the buzzing circular saw, which whirls through these rough-barked logs from morn till night; we find cities springing up, fed by this vast trade; we find docks built, and vessels coming and going over the waters; and we find the iron track already at the door of these backwoods marts.

This is but the growth of a few short years. It has come so suddenly that we do not realize it. Look at Chicago's receipts:—nearly 1,000,000,000 feet of lumber, besides 600,000,000 of shingles, and 121,000,000 of lath, for the year 1869! Who would have believed this thirty years ago? Who so fool-hardy as to predict it? *Ten hundred millions?* Preposterous! Yet in this year 1870 we scarcely give it a thought; or take it as a matter of fact—as the child receives his parent's gifts, nor thinks from whence they come. Ten hundred millions of feet! The figures themselves convey an idea of immensity, but nothing compared to the actual facts. Let us see what might be done with this lumber: If cut into planks, three inches in thickness, it would build nearly 4,000 miles of road, sixteen feet wide—which, by the way, is broader than we ever found a plank road, especially when we chanced to meet a loaded wagon. If cut into one-inch boards, it would cover thirty-seven square miles of surface; or enclose the sides of 250,000 buildings, fifty feet square and twenty feet high; or it would roof, from starting point to terminus, all the Pacific railroads now projected. If piled in the usual manner, it would require 37,200 piles, sixteen feet high; or it would make one column, with an altitude of 113 miles. If cut into fencing six inches wide—the usual width—it would build 75,757 miles of fence, five boards high; enough to three times circle the world at the equator, and leave a balance more than sufficient to enclose the State of Illinois,—for, if we are not at fault, the law of that State does not require a "pig-tight" fence. It would enclose an area of 358,685,721 square miles, nearly double the entire surface of our globe, and seven times its land area. And if any one should have a desire to build a fence, two boards high, from our planet to the moon, we have no doubt that Chicago enterprise would furnish the little balance of 267,000,000 feet necessary to complete it; and if she did not take the contract for building it, it would be because there was "*no money in it.*"

And this is only one year's receipts at one point. It is true, we shall find no other Western city with receipts as large as Chicago; but we can find a number of them aggregating double 1,000,000,000 feet. Just above Chicago, on the lake, we have Racine—a small place comparatively, but her receipts of lumber for

1869 were 30,073,000 feet, and of shingles, 15,596,000. On the Mississippi River, we have Quincy, with receipts of 30,000,000 feet, the largest of any Illinois town on the river. Just across the stream, we find that Dubuque received, in round numbers, 82,000,000 feet; and that the river towns of Iowa, taken together, distributed 450,000,000 feet.

We might extend the list, but we have given enough to show that Chicago is not alone in the lumber trade; and as we intend to answer the question, "Where does our lumber come from?" we will leave that other question, "Where does it go?" for another time.

Michigan is the great lumber region of the Northwest. Wisconsin and Minnesota are quite extensively engaged in the business, but both combined do not approach the amount produced by the neighboring peninsula. Whole counties, and tiers of counties, are one vast pine forest, in many places almost unknown save to the hardy trapper or pre-emptor;—a thicket of lofty evergreens, destined for the axe and saw, at no distant day. Every year the sound of the axe is heard further up the streams and further from their banks; and even now old lumbermen complain of the scarcity of pine land, when, in reality, there are millions of acres ready and waiting to be cut.

The western shore of Michigan is the largest "lumber-making" region in the world. No other point turns out such immense quantities, and but few can show a better quality. Michigan lumber, whether from the eastern or western shore, has won a reputation which ensures a sale when other lumber finds no demand. And this is due to the quality of the timber alone; for they *manufacture* it no better than at other points.

Muskegon, Newajo, and Ottawa Counties are the largest producers on the western shore. The product of the different counties and localities for 1869 was as follows:

	FEET.
Muskegon and Newajo Counties	419,330,000
Ottawa County	225,000,000
Manistee County	170,000,000
Oceana County	85,000,000
Mason County	75,000,000
St. Joseph, Holland, South Haven, Grand Traverse	40,000,000
About Green Bay	80,000,000
Other points	83,000,000
Total product of western shore	1,177,330,000

There may be some points that we have overlooked. No doubt there are, for it is very difficult to get correct data; but we have collected enough to show the magnitude of the business.

Nearly all of this lumber goes westward—across the lake to points in Illinois and Wisconsin; and from thence, westward yet, even to the mountains. A small share goes southward, even as far as New Orleans.

The eastern shore of Michigan is also an extensive lumbering region, and may

yet outstrip the western shore. The principal points are in the Saginaw district. There were cut on the Titabawassee River, in 1869, 275,000,000 feet of logs; and Bay City alone shipped 278,000,000 feet of lumber, 29,000,000 of lath, and 18,000,000 of shingles, in the same year. One or two counties compare favorably with the best on the western shore, but the aggregate falls short.

The amount manufactured on the eastern shore in 1869 was as follows:

	FEET.
On the Bay shore	118,027,500
Genesee County	91,111,000
Tuscola County	11,100,000
Gratiot County	19,930,000
Saginaw Valley proper	479,973,200
St. Clair County	51,000,000
Huron County	41,000,000
Lapeer County	22,000,000
Sanilac County	14,500,000
At Detroit	47,000,000
Total product of eastern shore	895,641,700

Some of these amounts are estimates based on previous years' productions; but they are sufficiently precise for general purposes. They are small enough, too.

There are some points on the Upper Peninsula where lumbering is carried on quite extensively—Menomonee, Peshtigo, and Escanaba, we call to mind; but we have no data relating to those points. Taking into account points overlooked on the lower Peninsula, and those on the Upper, we deem it safe to add enough to the product of both lower shores to make a total for the State of 2,200,000,000 feet. To manufacture this amount of lumber, requires a force of 12,000 men at least, and a working capital of $125,000,000;—an immense business, as well as remunerative.

Next to Michigan stands Wisconsin, as to the amount of lumber produced; but far behind her. Her lumbering points are about Green Bay, on the Wolf River and its tributaries, and on the Wisconsin, Black, and Chippewa Rivers.

At the head of the list stands Chippewa River. There were cut on this stream and its tributaries, in 1869, 285,000,000 feet of logs, of which amount Eau Claire sawed 48,000,000.

The amount of lumber sawed on the Wisconsin, in 1869, has been estimated at 200,000,000 feet, which probably is not far out of the way.

For Black River we will set down 125,000,000, for want of data; for that is the amount estimated to be put into the river the present winter.

Wolf River and tributaries, the Little Wolf, Embarras, etc., furnished 200,000,000 feet of logs in 1869, against 178,000,000 feet in 1868. And this amount was made into lumber; for enough logs of the previous year's cutting were sawed early in the spring to balance the logs left over this fall. It is the custom, and a necessity as well, to hold over a sufficient number of logs to use in the spring until the new logs are rafted.

We thus have a total for Wisconsin of 810,000,000 feet, very near the product of the eastern shore of Michigan; and, if anything, rather a low estimate. To

manufacture this, requires a force of 5,000 men and a working capital of $50,000,000.

Minnesota does not very nearly approach these figures, but she is yet young in the business. Should the business continue to increase as fast as it has for the few last years, she will soon present a favorable comparison with her sister State.

The total amount of logs cut in Minnesota in 1869 was, in round numbers, 400,000,000 feet. 192,000,000 feet of this went down the St. Croix River, at present the heaviest lumbering district in the State. In the manufacture of these logs into lumber, 2,500 men, and a working capital of $25,000,000, were employed.

The past year was quite an unfortunate one for the lumbermen of this State, for the unusual freshets caused them no little trouble, expense, and loss; with but few exceptions, however, they weathered the storm, and are yet in a condition for business.

We have thus sketched, from actual data and reliable estimates, the amount of lumber manufactured in our three Northwestern States, Michigan, Wisconsin, and Minnesota. We find the grand total to be, in round numbers, 3,200,000,000 feet; giving employment to 20,000 men; using a working capital of $200,000,000; operating seven hundred saw-mills; and clearing, as near as may be estimated, 340,000 acres of land, or a surface of five hundred and thirty-one square miles. If we add to these figures the capital used in the making of shingles and the men employed; the men engaged in lath sawing; the men at work on the rivers running the logs and lumber; the men at work loading and unloading; the army of mechanics who are constantly employed at repairing mills, boats, and lumbering equipage of all kinds; the tugs used in transporting logs; the boats transporting lumber; and the amount of rolling stock necessary to move this building material into the interior—we shall have an array of facts which the casual observer never thought of, and which may well make any one proud of our great and glorious Northwest.

But the maximum is not yet reached. Enormous as the business is to-day, it must and will be increased. The broad, fertile plains to the west of us must be peopled. Farms must be cultivated, fenced, and supplied with buildings; cities must be built, and rivers bridged and navigated. As the railroad, the greatest civilizer the world ever saw, is pushed from point to point, even into the unbroken wilderness, the hardy settler follows with plough and axe; and just behind him comes the lumber to build a home. Look at the growth of Iowa and Minnesota: The iron horse is now steaming across those fertile lands in all directions, carrying wealth and civilization through all that region. Yet more tracks are laid every year; and the cry goes back to our Northwestern lumber regions: "Send us more building material! *We must have lumber.*" So it will be for years; and who can tell when the cry will cease?

"But will not this pine timber soon be exhausted?" asks one. Before we answer this question we will ask another. What if the supply does become exhausted? What necessary article ever became scarce that we did not find something to replace? Where firewood is limited, we have coal; and who regrets the discovery of the "black diamonds?" We once taxed our eyesight by the

use of whale-oil as an illuminator; but there was a prospect of being denied even that, for the wholesale slaughter of the monsters of the deep was fast thinning their ranks. There was a call for a substitute. Gas first came to relieve the pressing demand for light-giving material. Then the very earth was tapped and made to yield, in copious streams, the very substance we so much needed. Thus it will be with our pine forests. When they are gone, there will be a substitute given us. But if this were not so, must we stop the cutting of this precious timber? Must we stop the growth of this Great West, that we may save a forest or two? *Can we* stop it? No, no; as long as we need lumber let us have it, even if we are obliged in the end to fall back on Alaska. But *will* our pine timber soon be exhausted? We say no. None of our generation will see our pine forests decimated. Even in our oldest lumbering districts the business is still carried on. The timber is further from the streams, which entails extra expense in the hauling; but this will not prevent the manufacture. Mills will be erected in the hearts of these pine forests, and steam will transport the lumber to market.

We need not fear that in our day and generation there will be a scarcity of good pine lumber. Besides the tracts now developing, there are others yet to be opened. Up the Missouri River there are millions of acres of this indispensable evergreen; and before long will echo there the sound of the chopper's axe, the steady buzz of the steam saw-mill, and the shrill whistle of the locomotive. Ere this is all gone, forests yet in their infancy will have attained sufficient growth to partially supply the place of those cut down; and other forests, which we are yet unable to reach, will yield up their treasures to man's perseverance and ingenuity.

ART. X.—BRIDGE BUILDING.

The N. O. Picayune art of constructing bridges for overcoming such natural obstructions as rivers, small lakes, ect, in the paths of railways, or to relieve passengers of the numerous inconveniences and not unfrequent risks of ferryboats running upon streams flowing by cities, has become one of very great importance of late years, in Europe and the United States. From the period of the triumphant inauguration of the great tubular bridge over the Menai Straits, people have been growing so continuously familiarized with the grand ideas and sucesses of civil engineers who devoted their studies to the art of bridge or viaduct construction, that now-a-days nothing in that line seems so immence or bold as to create any great supprise either by being proposed or carried out.

The Scientfic Journal, published in Philadelphia, devoted to the subjects of mechanical and manufacturing art, engineering and inventions, gives us, in a late number much interesting information on bridge building in the year of

1869. Among other structures mentioned, is one to span the estuary in Holland, formed by the junction of the rivers Waal and Maas, so as to provide an unbroken railroad communication between Antwerp and Amsterdam; it has fourteen openings, of 328 feet each, making a total length of 4,592 feet, or considerably over three-quarters of a mile, and cost by contract $611,300. Another bridge, which affords railroad communications between France, Belgium and the centre of Holland, is that of Bommel, now on the eve of completion. It has eight openings of 187 feet each, and three of 308 feet eight inches, or nearly a half a mile in length, and costs $171,655. The Grvecœur Bridge, spanning the Maas, has ten openings of 187 feet, and a main span of 328 feet, and is to cost by contract $465,000. It will not be finished until the close of the present year. Other important bridges in that locality have been undertaken or completed.

At Prague a supension bridge for foot passengers only, and of which the suspension chains are of Bessemer steel, has been completed. It is but eleven feet in width, and cost $92,500,

But it is in America that are to be found the greatest conceptions, or completions in the art of bridge building. Of these the Scientific Journal gives precedence to the plan of the late Mr. John A. Roebling for constructing a single span suspension bridge over the East River, so as to connect New York and Brooklyn, having a clear stretch of 1,600 feet, the towers of which will be of a total height of 300 feet, and will carry wire cables for a suspension double roadway for passenger and street railway traffic. The bridge across the Mississippi, at St. Louis, projected by Mr. Eads, engineer, will have a central span of 515 feet and two side arches of 487 feet each, making its length 1489 feet, to cost about $3,000,000. Not far above the point at which this work is to be constructed, the Quincy Bridge, the longest spanning the Mississippi, has been opened and in use for about a year. This structure is thrown over the river where it is 3350 feet in width, though the navigation channel is but from 800 to 900 feet broad. It cost the Quincy Railroad Company $1,095,000, and has seventeen spans, two of 260 feet, three of 200 feet, eleven of 137 feet and a large draw of 360 feet in width. At Omaha, several railway companies combined to throw a bridge over the Missouri of 2800 feet in length divided into eleven spans of 250 feet each, resting on concrete filled cast iron cylinders eight feet eight inches in diameter, some of which are sunk to a depth of seventy feet below low water, making the column's height 139 feet. Mention is also made of the Cornwall bridge to cross the Hudson some forty miles above New York. It is to be a suspension bridge, 70,300 miles of wire being required for the cables, the towers to be 280 feet high and the total length with approaches, 2500 feet, the clean span 1600 feet, estimated cost being $1,500,000.

In our last number we described the Louisville Bridge.

ART. XI.—THE FIRST PROTESTANT SERMON PREACHED IN NEW ORLEANS.

From the South-Western Presbyterian.

A friend has sent us a copy of a letter written by our venerable brother, Rev. Dr. Benjamin Chase, to Rev. Jno. G. Jones, author of "A Concise History of the Introduction of Protestanism into Mississippi, and the Southwest." As this letter contains an account of the first Protestant sermon delivered in New Orleans, or in the State of Louisiana, we publish it as an interesting contribution to our early religious history. Bro. Chase still lives, at the age of four score years, one of the few members of the Synod of Mississippi left as a living witness of the early labor and trials of our Church in the Southwest.

MANTUA, Nov. 28. 1869.

Rev. and Dear Sir:

On my return from Fayette, where I had the pleasure of seeing you, in September, I found my family in affliction, which continued several weeks—at one time myself being the only one exempt from sickness. You will please regard this as my apology for delay in writing as I suggested.

The Rev. Jedediah Smith was a Congregational minister, with twelve children, ten of whom accompanied him from Granville, Mass., to the "Natches Country," in 1776. On his way, landing at what was then called "The Island of New Orleans," under the dominion of Spain, he was their seized by the Roman priesthood, all his property confiscated, and his library burned.

After his release he obtained a keelboat, and with the aid of his sons slowly and tediously ascended the Mississippi, in the month of July, as far as "Loftus Heights," now Fort Adams.

Exposed to the midsummer sun, unaccustomed to the climate, he was taken sick, and the boat left to the management of his sons, who conducted it to Natchez, where he died, soon after his arrival, and was buried below the Bluff, not far from Fort Rosalie. In a

few years the breaking away of the bank removed, and ever after rendered the place of his interment unknown.

Six of his sons, viz: William, Josephus, Philetus, Israel, Philander, and Calvin, with two daughters, Sarah and Philomela, settled on Second and Saint Catherine creeks, within eight or ten miles from Natchez, became wealthy, influential, and highly respected families; many of their children and descendants, members of the Presbyterian Church, eminently pious and useful. Two of the sons, Luther and Courtland, settled at Bayou Sara, then in West Florida, and now the Parish of West Feliciana, Louisiana, where they resided for upwards of fifty years, their families being among the most worthy and respectable in the community.

In September, 1805, Bishop Benjamin Moore, of the Protestant Episcopal Church, New York, received a letter from James M. Bradford, James C Williamson, and Edward Livingston, dated "New Orleans, Aug. 12th, 1805," requesting him to send them a minister of the Gospel, of the Episcopal denomination, adding, "It is to be recollected that his supporters are not only of his own persuasion, but also Presbyterians, Catholics, &c." Bishop Moore recommended the Rev. Philander Chase, Rector of the Church of Poughkeepsie, New York, who consented to go, and, sailing on the 20th of October, arrived at New Orleans on the 13th of November.

An act of incorporation had been obtained, and, on the 16th of November a vestry organized, consisting of the following persons, viz: J. B. Provost, D. A. Hall, Benjamin Morgan, Joseph Saul, Wm. Kenner, Joseph McNiel, George T. Ross, Charles Norwood, Andrew Burke, R. D. Shepherd, Richard Relf, Ed. Livingston, J. McDonough, John P. Sanderson, and A. R. Ellery; of these, Joseph Saul and Andrew Burke were elected wardens.

On Sunday, Nov. 17th, 1805, at 11, A. M., the Rev. Philander Chase preached the first Protestant sermon ever delivered in New Orleans, or Louisiana; and on Wednesday, Nov. 20th, the vestry met, for the first time, Benjamin Morgan, chairman, and A. R. Ellery, secretary, returned Mr. Chase a vote of thanks for his readiness and zeal in tendering his services—proffering him a salary of $2,000 per annum, and use of a house, or $3,000 yearly in lieu of it, which he accepted, as their rector, and remained until the autumn of 1811,

when he returned to the North, and became rector of Christ Church, Hartford, Connecticut.

In 1815, soon after the close of the war with England, Mr. James Hull, (said to have been a licentiate of the Presbyterian Church, Ireland,) came to New Orleans, from Georgia, and, after preaching a few months to the Protestant congregation, went to New York to obtain ordination, and, unexpectedly to many of the people, received it from the Episcopal bishop, returned to New Orleans, and became rector of the Episcopal Church, Alfred Hennen, Esq., becoming one of his vestry.

On the 30th of December, 1817, the Rev. Elias Cornelius, on an agency to the Southwestern Indians, for the "American Board of Commissioners for Foreign Missions," arrived in New Orleans, and, much to the gratification and delight of the Protestant worshippers, preached several times, while awaiting the arrival of the Rev. Sylvester Larned, who came on the 22d of January, 1818.

The people were charmed with Mr. Larned's eloquence and power, as a preacher, and, on the 9th of February, held a meeting to take measures for the erection of a second Protestant house of worship, for his accommodation, subscribed $6,200 for that object, and soon after increased it to $40,000, extended a call to him to become their pastor, with a salary of $4,000 per annum, which he accepted. The church edifice was erected the following year, (1819,) and on the 31st of August, 1820, Mr. Larned died from yellow fever.

Hoping the above additional scraps of our early Protestant history may be an acceptable offering to some future edition of your interesting volume.

In Christian fellowship,

Yours, affectionately,

March 10, 1870. BENJAMIN CHASE.

ART. XII.—FIRST PROTESTANT SERMON WEST OF THE MISSISSIPPI.

Rev. H. M. Smith, D. D.

In your last issue appears an interesting letter from the venerable Rev. Benjamin Chase, giving, among other things, an account of the first Protestant sermon preached in New Orleans, viz: "On Sunday, November 17th, 1805, 11 A. M., by the Rev. Philander Chase," of the Protestant Episcopal Church.

Such reminiscences of the dawn of our holy religion in the wild places of the new world are ever interesting, and, with your permission, I will give you an account of what is believed to have been the first Protestant sermon ever preached west of the Mississippi river.

Rev. James Kerr, a minister of the Baptist Church, (whose father emigrated from Ireland and was a Presbyterian,) was born in the State of Pennsylvania, on the 8th day of October, 1749. In 1780, with a wife and two infant daughters, he settled two miles from where Danville, Kentucky, now stands. In 1797 his eldest daughter, with her husband, removed and settled twelve miles west of Saint Louis, Missouri. Two years later, in 1799, he, with his wife, went on horse back from Kentucky to Missouri, to visit their daughter and look at the country. Returning from a tour up the country, lying between the two great rivers, and when within six miles of their daughter's home, Mrs. Kerr suddenly sickened and died. But few Americans were then in the country, which was a part of Louisiana and under the government of Spain, but it was determined that the memory of the deceased should be commemorated according to the religious custom of her fathers, and, after due notice, her funeral sermon was pronounced by her stricken husband, in the presence of all the Americans then in the two counties of Saint Louis and Saint Charles, on the 20th October, 1799, and was long remembered by those "strangers in a strange land," as an occasion of extraordinary interest, in which the Minister, always earnest and gifted with

nature's eloquence, subdued every heart, and laid the foundation among his hearers for one of the most blessed Baptist congregations subsequently established in the earlier history of the Territory and State of Missouri.

This devoted pioneer Minister removed, with all his other children, to Saint Charles county, Missouri, in 1808, where he died September 27th, 1811. Of his nine children who lived to become heads of families, all died in the fellowship of the God they had served. His sons were men of great respectability, fine intelligence and exerted a wide influence for good wherever they lived, and each filled responsible public trusts. His four daughters survived to be regarded truly as "mothers in Israel."

A singular coincidence may be stated: That on removing to the wilderness of Texas in the winter of 1824-5, his elder son, Major James Kerr, so long distinguished as a pioneer, a surveyor and as a legislator in that infant country, lost his wife in the wilderness under circumstances almost identical with those attending the death of his mother; but, on which occasion, in the absence of a minister or male professor of religion, a lady of the Presbyterian Church, whose memory is treasured by thousands, performed the sweet offices of comforter to the afflicted. This noble Christian lady was the revered mother of the Honorable James H. Bell, formerly of the Supreme Court of Texas and still of that State. B. H. J

New Orleans, March, 1870.

ART. XIII.—STEAM PLOWING.

From the New York Day-Book.

In our last week's article upon deep culture and through draining as the basis of good agriculture, we had not the opportunity to introduce one very important aid, which renders the plowing or stirring of the soil in every sense perfect and complete; and that is, the application of steam power. We have discussed this agency on many occasions, and shall continue so to do as often as we obtain a single new idea connected with it, which we believe deserves ventilation; for this wonderful auxiliary of agriculture, steam, is destined to work wonders for the husbandman, and add to the value of

his broad acres a hundred fold. As great a change in the mode of cultivation of the soil may be realized through the agency of steam, as has been affected in travel, or in carrying the products of culture to market. It has been stated in articles upon this subject, that there are already three thousand steam plows at work in England, some of them with stationary engines capable of driving from three to six plows each, and doing better and deeper work than formerly, with a reduction of one-third the horses and half the laborers. In plowing, the desideratum sought is perfect cultivation, which involves such preparations of the soil as secure the rapid growth, complete development, and full maturity of the various crops at the least cost in proportion to the result attained. The failure in thorough pulverization most frequently results from want of adequate power in hard or heavy soils. Insufficient power, with light plows, breaks imperfectly a shallow depth, while the mighty power of steam harnessed to ponderous and strong implements suited to the purpose of breaking, pulverizing, or intermixing soils, accomplishes all the results of a superior cultivation in less time and at a less expense than by any other method. Sufficient importance is not always attached to a thorough disintegration and mechanical admixture of the various ingredients of soils. However rich they may be in plant food, vegetation will starve if not found in soluble form, or not in contact with the delicate root-fibres, which act as mouths of the plant; and its solubility will depend upon the action of the atmosphere, heat, and consequent chemical changes facilitated by loosening and mixing the earth, which supplies, in good part, the elements of growth. In this, steam-culture is allied to spade-husbandry, producing essentially the same results, ærating to a great depth, giving unobstructed course to the most delicate root-growth, aiding necessary decomposition, promoting recomposition and increasing soluble plant-food, thus protecting against the influence of drought, and enlarging wonderfully the capacity of the soil for production. It is declared by an agricultural writer that a team of four horses plowing a furrow ten inches wide will leave 200,000 foot prints on an acre. This packing of the soil by the weight of horses or cattle year after year, is a source of mischief that few have properly esti-

mated, but which may be obviated by the use of steam in cultivation. There are to-day several sets of English steam-plowing machinery in the United States in daily use, some of them in the State of Louisiana and some in Illinois. They are said to break up eight acres per day fourteen inches deep, through a tough soil. The steam cultivator is made to follow the plow, stirring the soil to a still greater depth, and operating as a pulverizer. The plow is at a cost of $225. The cultivator prepares twelve acres per day at a cost of $150 per acre. It is held in England, that the cost of steam machines which break up and pulverize 2,000 acres twelve inches deep, is not over $1,500 American currency, or say seventy-five cents per acre.

In the report of the Commissioners appointed by the Royal Agricultural Society of England, the following conclusions are given: The commission selected 140 farms, embracing 66,000 acres, probably not one-third of the *steam-tilled* area of the kingdom. In the use of the steam plow in agriculture, its successful results depend much upon the energy, vigilance and skill of the person who employs it. Here, as elsewhere, success is obtained only when business habits are combined with scientific principles. In comparing horse-labor with steam, in the case of working, there is no doubt about the advantages of the latter. The Marquis of Tweedsdale's great plow, worked with twelve horses, got over half an acre per day. The seven-horse power steam engine did three acres a day to the same depth. Not only has the yield in steam-worked land been found to increase four bushels per acre, but the market value of the wheat raised has increased three pence per bushel. The staple is deeper and better mixed with subsoil, and produces a straw stout and standing erect. The root crops were also better. Work is done, not only with greater despatch, but with greater certainty. Upon medium and heavy soils the benefits obtained by steam plowing are undeniable. A culture deeper than it is possible for horses to effect, works a highly beneficial influence in the texture of the soil, imparts additional efficiency to drainage, augments the value of the manure applied, and brings into activity certain latent properties of the soil which must increase its fertility. In nearly all the cases of the

application of steam plowing, which have been reported, a large gain in produce is said to have been realized. Another perceptible result to which attention was drawn, was the quickened pace. Not only are the operations themselves better done, less expensively done, but all the collateral movements have imparted to them a speed characteristic of steam. The increase of the wheat crop on steam-plowed land has, in some cases, been eight bushels per acre. Among the important performances of this powerful machinery for steam culture, is that of breaking up, or crushing the soft rock or stones in cultivated land to the depth of twelve to fifteen inches, and incorporating them with the soil. It is injurious to a close, stiff soil to remove all the stones from it. Besides the loss to the soil from the gradual disintegration of the stones or rocks through the action of the frost or other agencies, their mechanical influence upon the soil, especially when reduced to small size and mixed with it to the depth of twelve to fifteen inches, keeping it open, facilitating drainage, and increasing its power of absorbing air, moisture and the gasses which afford nutrition for vegetation, is, to a high degree, favorable. Many years ago, an able article was published in an English periodical, stating that a turnpike road paved with stones gathered from contiguous grounds, was made through a fertile district of that country, and in a few years the lands from which the stones had been removed on each side of the road became greatly deteriorated, while those lands subject to the same system of tillage, at a greater distance from the road, where the stones remained, sustaining their fertility. No stones should be removed from the soil, especially a close, tight soil, except such as are to large to allow of the means of cultivation.

ART. XIV.—THE RICHMOND CALAMITY!

We copy and condense from the Richmond Whig the particulars of this terrible calamity. There are some reflections which may be added to the sympathy which overspreads the country, and which has been manifested by every form of condolence from every section and from every city.

The assemblage that occasioned the accident was drawn together

by a controversy purely political. It therefore brought victims of all parties and of all colors. The calamity which involved all, united all, in the offices of succor and of sympathy. Among the dead was Senator Bland, colored. He had recently expressed himself warmly in favor of amnesty and of social peace. The Senate of Virginia took the following action.

DEATH OF SENATOR BLAND.

"Mr. Massey offered a resolution providing for the appointment of a committee to draft suitable resolutions in reference to the death of Senator Bland.

Mr. Snowden, as representing the Conservative side of the house, paid an appropriate tribute to the memory of the deceased. He spoke of his worth and high character as a man, and of his faithfulness in the discharge of his duties. He said he expressed the sentiment of every gentlem n on his side of the house in declaring his sympathy and respect for the deceased.

Mr. Anderson, of Pittsylvania, followed with remarks highly eulogistic of the deceased.

Mr. Massey's resolution was then adopted.

The President appointed the following as the committee: Messrs. Massey, Wood, Snowden, Anderson, of Pittsylvania, and Pendleton.

On motion of Mr. Campbell, the President of the Senate was made the chairman of the committee."

In the remarks made by Governor Wise, he accepted the high moral taught by this indiscriminate mortality. The madness of a political excitement which diverts the public thought from its social and industrial troubles, and convenes men in a party conflict who had much better combine to restore the material prosperity of the country.

Even the ruined old building teaches its moral. It is a grand memorial of the men who have spoken and acted in the honor of Virginia; but it was poorly planned and imperfectly adapted to the wants of a modern audience. We should sanctify and worship the *principles* of truth. We should illustrate the displays of genius, but the particular places in which, or modes by which, these principles may have been displayed is a matter of entire indifference. For

us, God may be worshipped with more comfort, and by greater numbers, where the people assemble in a building, strong, well lighted, well ventilated and easily accessible, than where the sanctuary presents the state of architecture and of superstition two hundred years ago. Men in the South should cling to the principles of their ancestry. To give effect to those principles, they must adopt every modern improvement which is applicable to their advantage. We hope to see the Capitol of Virginia rebuilt of the beautiful granite which lies beneath it; its whole plan and structure, furnished according to the latest improvement for the comfort of those who are to inhabit it. In the same spirit we trust to see Virginia, honoring the men, and preserving the principles of the past, so reorganize and reconstruct her social and industrial interests, that she may be stronger and more prosperous in the future than in the past. It is in this manner that even such calamities as war, may be deprived of their evil and made minister to the welfare of society. The rapid reintegration of society in Virginia will find its illustration in the new Capitol. Both will be of State granite. Each of the truest architecture. Each will minister to the happiness of the builders, and to the immortality of those principles which they are intended to perpetuate. [Ed. Review.]

The 26th of December, 1811, was long remembered in Richmond, because that date was rendered memorable, even to the present era, by the burning of the Richmond theatre, which occupied the site on which the "Monumental Church" now stands. Over one hundred ladies and gentlemen, including the Governor of Virginia, perished in the flames. Since that terrible event, which occurred fifty-nine years ago, this community has not been afflicted with any calamity so productive of overwhelming horror, desolation and grief, until yesterday, the 27th of April, when upwards of fifty of our citizens were suddenly ushered into eternity by an appalling accident at the State Capitol. More than a hundred other citizens were maimed or injured by the same dreadful disaster. It was so startling, of such magnitude, and so full of calamity to private families, to the city and to the whole Commonwealth, that it will be forever associated in the public mind with the burning of the Richmond theatre.

A crowd had assembled in the court-room of the Supreme court to hear the announcement of the decision in the mayoralty case. This room was used many-years ago as the Senate chamber, and for the convenience of the public, a gallery had been attached to it. Just a moment or two before the court was to meet (only two of the judges having taken their seats on the bench—Judges Joynes and Anderson), the old gallery gave way under the human weight that bore upon it and fell in, breaking through the floor of the room and carrying along with it a large number of persons, and precipitating them some twenty or thirty feet into the Hall of the House of Delegates. Many were killed, many mangled, others more or less injured, while some by rare good fortune escaped unhurt. In one instant effects were wrought that volumes could scarcely describe. When the crash occurred the intelligence of it immediately spread through the city, causing a panic and such a degree of painful anxiety and distress as were without a parallel during the war. It was known that the court-room would be crowded, that it was near the hour for both houses of the Legislature to assemble, and that a subject would be taken up which would attract a large concourse of our most valuable citizens and of strangers to the Capitol. Every heart felt a shock of horror as the news spread. From all parts of the city, and through all the thoroughfares and streets, crowds took their way to the Capitol, all fearing that their nearest relatives and dearest friends might be among the victims. In addition to these private and personal apprehensions, there was an appalling sense of public calamity that stunned and bewildered the firmest minds. Such scenes as presented themselves were sickening. Fortunately there are always, in such emergencies, men who throw aside human weaknesses and immediately give themselves up to the good work of rescuing, saving and relieving the subjects of disaster. It was so yesterday. They lost no time, but, going into the fearful scene, they commenced operations at once. Conspicuous among those who initiated measures for relief and order were Governor Walker and Senator French. The first order given and executed was to break open the doors and windows and admit air for the relief of the many who were supposed, and correctly, as it subsequently turned

out, to be menaced with suffocation. While some removed the fallen timbers under which the sufferers lay, others procured ladders and placed them at the windows. Hacks, private carriages, furniture wagons, mattresses and other conveniences were soon provided in great numbers. Then commenced the work of removing the killed and the wounded, and a scene was presented that tried the stoutest nerves and the coldest hearts. One after another the dead and the wounded, all covered with dust, were brought down the ladders, and either laid on the grass or placed in vehicles and carried to their homes or to other quarters kindly provided for them. As the victims of the disaster were brought to the windows and appeared before the thronging multitude, the most intense anxiety was felt and manifested as to their recognition. All were on the lookout for their friends. So begrimed were the faces with dust, and so crushed was their clothing, that recognition was not easy. Most of the unfortunate persons, however, were recognized before they reached the ground. The feelings of the spectators were of the most painful character, and full of rapid alternations. Now they recognized in one of the bodies a relation or a friend—dead. Then one mangled. Then one not severely injured. What a relief it was when one appeared in view who had escaped injury! At length all the rubbish was removed and all the bodies recovered. Great as the calamity was, it was felt to be a relief when the painful work was brought to a conclusion.

The frightful disaster we have described will leave its impress on this generation. May such another never befall this city.

CAUSE OF THE DISASTER.

On the 16th of March last a new City Council, appointed by Gov. Walker, in pursuance of the provisions of an act of the General Assembly, known as the "enabling act," elected Mr. H. K. Ellyson Mayor of Richmond. The constitutionality of the said act was contested by the incumbent of the Mayoralty, Mr. George Chahoon, and ultimately the question was brought before the Supreme Court of Appeals, recently elected by the Legislature. The arguments of counsel were heard last week, and the court, as usual, reserved its decision. On Tuesday, it was announced that the decision would

be rendered on the following day (yesterday) at 11 o'clock. The solution of this vexed question had excited great interest in this community, and at the hour designated a large crowd of persons assembled in the court-room.

THE LOCALITIES.

The court-room of the Supreme Court of Appeals occupied the northeastern corner of the third floor of the Capitol, and was separated from the apartments occupied by the Governor and his staff by a thin partition. The entrance to the court-room was from the corridor which overlooks the Washington statue. Access to the gallery was by means of a stairway commencing near this entrance. Under this gallery was a vestibule, with a centre door opening into the court-room, and opposite this door, at the eastern end of the room, was a platform on which the judges sat. The room was occupied during the late war by the Virginia Senate, the present Senate Chamber being occupied by the Confederate House of Representatives. The apartment outside of the railing, in front of the judges, would ordinarily accommodate about two hundred persons. The gallery would hold about one hundred. Immediately under the court-room, but extending the whole width of the building, is the Hall of the House of Delegates.

THE CATASTROPHE.

At 11 o'clock the court-room, vestibule and gallery were all crowded with citizens and strangers, mostly white, eagerly awaiting the announcement of the decision. Others were constantly arriving, and in a very few minutes all the available space was occupied. At the reporters' table were seated Mr. M. P. Handy of the *Dispatch*, Dr. Joseph B. Brock of the *Enquirer*, Mr. Ernest Wiltz of the *State Journal*, Mr. J. A. Pizzini of the WHIG, Mr. W. D. Chesterman of the Petersburg *Index*, and Mr. W. C. Elam of the Petersburg *Courier*. About twenty-five members of the bar, including the counsel in the case, were present. General Wise and R. T. Daniel, Esq., of the counsel, were not present. A cheerful good humor prevailed on all sides. Presently Judge W. T. Joynes entered from the "conference room," through a side door, and made some remark to Ex-Governor Wells. He returned to the "conference room," but in a few moments returned, accompanied by Judge F. T. Anderson. They

took their seats to await the arrival of their colleagues, who were expected every minute from the adjoining "Conference room," in which they tarried.

A crack was heard as if a gun had been exploded beneath the floor! All eyes turned towards the centre door, under the front of the gallery, from whence the sound proceeded. In an instant, the ominous and alarming sound was again heard, and simultaneously, to the horror of all present, the floor commenced to give way, and immediately fell through to the floor below with a fearful crash, followed not only by the gallery and its weight of humanity but by the timbers overhead, to which the ceiling of the court-room was attached. We dare not attempt a description of the fearful scene! A wail of horror, quickly followed by shrieks of suffering mortals, ascended from that abyss of agony and death.

THE ESCAPES.

That portion of the floor on which the judges' platform was erected did not go through with the rest, as there was comparatively but little weight upon it. Judges Joynes and Anderson escaped to the "conference room," and were followed by Mr. Pizzini of the WHIG, and several others, who had struggled through the mass of rubbish and reached the platform. Colonel McPhail was leaning against the mantel, and clung to it until he obtained a foothold. His arm was badly injured by the plaster falling from above. Mr. William Taylor, grocer, of this city, grasped a window sill near him and held on until assistance came.

A large number of those who went through sustained no other injury than a severe shock and a few bruises or cuts. It is marvelous that so many escaped death from the falling timbers and heavy plaster ceiling of the court-room which must have fallen upon the crowd.

THE SCENE OUTSIDE

A few persons were in the Square near the Capitol. Most of them comprehended at once the terrible accident, while others, who observed the volumes of dust pouring from the windows, supposed

that an explosion of the heating boiler in the building had taken place.

Mr. W. H. Grant hastened to the bell-house, on Ninth street, and at his instance the general alarm was sounded. The bell was tapped rapidly, and all within hearing of the sound were startled, knowing that something unusual had occurred. The report spread rapidly that the Capitol was on fire, and citizens ran from all directions towards the Square. The white dust, resembling clouds of smoke, still enveloped the northern end of the Capitol, and, until the awful fact was realized, the impression prevailed outside that the building was doomed to destruction by fire.

ALL HANDS TO THE RESCUE.

In a few minutes after the alarm was sounded the Hook and Ladder company arrived on the Square and immediately set to work in elevating their ladders. Other firemen followed rapidly and united with the ladder-men in attempting the rescue of those who were buried in the ruins. Many of the citizens who hurried to the scene also lent their assistance, but the majority seemed petrified with horror, or feared that the old building would fall in and crush all who ventured near its walls. One by one the survivors of the crash came forth, or were assisted to the open air, each one whitened with plaster dust, or so disfigured by blood and dirt as to be almost unrecognizable.

There were soon plenty of workers—not only firemen, but members of the Legislature and citizens generally—who went boldly and manfully into the midst of the debris, and proceeded to clear the hall of the accumulated mass of rubbish, or to bring out the wounded and dead. A number of policemen soon posted themselves at the entrances to prevent too many persons from aiding in the work of extricating the sufferers. This was a judicious precaution, as the crowd increased every moment as the thrilling news spread through the city.

Nearly all who entered upon the work labored untiringly, and their heroic efforts entitle them to the highest praise. We forbear

to particularize lest we should omit the names of some who deserve to be mentioned.

All the surgeons and physicians in the city were upon the ground as promptly as possible, and rendered all the aid in their power to the sufferers. The Senate Chamber was made a temporary hospital and morgue, but most of the bodies of the dead and dying, as well as those not seriously wounded, were taken to the grass plots in the square. Carriages and other vehicles were brought into requisition and a number of the wounded were conveyed at once to their homes, or to the hospital at the Medical college.

The following is a

LIST OF KILLED.

P. H. Aylett, Attorney at Law. N. P. Howard, Attorney at Law. Powhatan Roberts, Attorney at Law. Dr. J. B. Brock, Reporter, *Enquirer and Examiner*. J. W. D. Bland, Senator from Prince Edward. Wm. A. Charters, Chief Engineer of the Fire Department. Samuel A. Eaton, Clerk of Mr. Chahoon. Robert H. Maury, Jr., Land Agent. W. H. Davis, Coal Merchant. David S. Donnan, son of W. S. Donnan. Major Samuel Harden Hairston, of Henry county. B. F. Robinson, of Cumberland county. John Robertson, Colored Baptist Minister. Thomas H. Quarles, son of Thomas D. Quarles. Charles J. Grinnan, of Washington. Edward Ward, puddler at Tredegar Works. Capt. James Kirby, old citizen. Col. Thomas H. Wilcox, Charles City. Ash Levy, old citizen. Colonel Pichegru Woolfolk, of Caroline county. R. E. Bradshaw, grocer. W. H. Thompson, of Sidney. T. P. Foley, Deputy United States Marshal. E. M. Schofield, City Assessor. John Turner, youth, page House of Delegates, son of Major F. P. Turner. John Newman, merchant. Henry Forsyth of Staunton. Charles Watson, clerk Danville depot. Hugh Hutchinson, coal dealer. Lewis N. Webb. James A. Blamire, druggist. John Baughn, of Manchester. W. E. Randolph, supposed from New York. S. E. Burnham, Balston Spa, New York. Samuel Hicks, father of policeman Hicks. G. S. Taylor, Richmond county. S. G. Taylor, Richmond county. Benj. W. Lynch, of Manchester. T. Anthony Brewis, merchant, of Alexandria. J. D. Massie, of Goochland. Julius A. Hobson, city

collector. Wm. Dunn, Venable street. Anthony Biene, German, grocer. Hugh Grady. Charles Brown, colored.

POLICEMEN KILLED.

Captain D. D. Tourgee. Sergeant James P. Cox. Sergeant Wilkerson. Private William Cray. Private James N. Walker. Private Joseph A. Seay. Private John Kerr. Private Sidney Coleman. Private Michael McCarthy. Private John P. Maher. Private —— Shultz. Private Watchman, John L. Ryan.

INCIDENTS.

Just before Mr. Aylett entered the Capitol he was conversing with a friend about the death of Hugh R. Pleasants, and remarked on leaving: "We are all passing away."

Mr. Aylett was borne to the plateau north of the Capitol, where he expired. He uttered a fervent prayer before death forever sealed his lips.

The House of Delegates was not in session when the crash occurred. So far as we can learn only some fifteen or twenty persons were in the hall at the time.

The hats and caps taken from the ruins nearest the statue of Washington were thrown at the base of the pedestal, making quite a pile.

The engine houses were draped in mourning last night, in respect to the memory of Chief Engineer Charters.

When the tidings of the disaster reached the Tobacco Exchange, the dealers adjourned immediately.

Business was suspended throughout the city after 12 M., and many of the store doors on Main and Broad streets were craped.

The Capitol was erected in 1792 from plans furnished by M. Cleressault, a French architect.

Two watches, taken from injured persons for safe keeping, can be recovered by the owners on application to Dr. J. S. Michard, 732 Main street.

One of the sufferers had $6,000 in his pocket-book, which was taken in charge by one of his friends. It was erroneously reported that it had been stolen.

All distinctions of color were levelled. The body of Senator Bland was laid out between the corpses of two white men.

The Hall of the House of Delegates was completely wrecked. The Speaker's chair, a relic of colonial times, was thrown from a window and broken into fragments.

The stretchers and ambulances belonging to the Medical Department of Headquarters were sent to the scene by direction of General Canby. Drs. Rose and King of the army ministered to the wounded.

MEETING OF THE RICHMOND PRESS CLUB.

Pursuant to a call from the President, Mr. W. S. Gilman, a special meeting of the Richmond Press Club was held last night at the office of the WHIG.

Mr. T. H. Wynne moved that a committee be appointed to draft resolutions expressive of the loss sustained by the club by the death of Dr. J. B. Brock.

The following committee was appointed: Messrs. Wynne, Tinsley, Cowardin, Wiltz and Coghlan.

The committee, after a brief retirement, reported the following preamble and resolutions, which were unanimously adopted:

Whereas it has pleased the Supreme Director of all things to remove from those who were professionally associated with him, our esteemed friend, Dr. Joseph B. Brock, of this city,

Resolved, That the death of our late friend and associate is to us a personal affliction. We regard his loss as a public calamity, and while we deeply deplore his untimely end, we consider it as an admonition to us to be prepared at all times to meet that summons which sooner or later must reach us all.

Resolved, That we will ever cherish the memory of our deceased brother with affectionate regard, and that we will ever emulate his generous character, and endeavor to imitate that courteous and kindly bearing which made him so well beloved by those who knew him.

Resolved, That we tender our deepest sympathies to the family of the deceased, and assure them of our respect and regard for the deceased, and of regret for the loss which they have sustained.

Resolved, That the members of this club will attend his funeral in a body, appointing four members to act as pall-bearers.

Resolved, That we will wear the usual badge of mourning for thirty days.

Resolved, that a copy of these resolutions be furnished to the family of the deceased.

Mr. Wynne paid a beautiful tribute to the memory of our deceased brother, and related a touching incident occurring during his last moments, showing by the messages of affection sent to his wife and children, whom he loved so tenderly and devotedly, that his heart was in the right place, and that care for himself had no part in his thoughts, even when his life was ebbing out.

On motion, the club adjourned.

PUBLIC MEETING.

The following call for a public meeting to-day was received yesterday afternoon:

To the Citizens of Richmond:—A terrible calamity has just occurred by which many who were in life but a day ago are now sleeping in the calm repose of death. It is fitting upon such an occasion that some public action should be taken expressive of the deep sorrow that prevades every heart.

It is therefore recommended that the people assemble on the Capitol Square to-day at 12 o'clock, to give a suitable expression to their grief and sympathy on this mournful occasion.

OTHER MEETINGS.

The members of both houses of the General Assembly will meet at the Exchange Hotel this morning at ten o'clock.

The firemen will assemble at the hook and ladder truck house, on Broad street, between Ninth and Tenth, at ten o'clock.

The members of the Bar will meet in the Hustings court-room, City Hall, at the same hour.

The members of the Shockoe Hill Division No. 54 Sons of Temperance will assemble at their Hall, on Broad street, between Sixth and Seventh, this afternoon at two o'clock, to attend the funeral of their deceased Brother Thomas H. Quarles. All the temperance organizations are respectfully invited to attend.

The surviving members of the Third company Richmond Howitzers are requested to meet at the Spotswood Hotel this day at ten

o'clock, A. M., to make arrangements to attend the funeral of their late comrades who perished at the Capitol. Members of the Frst and Second companies are invited to attend.

ANNOUNCEMENTS OF FUNERALS.

The following announcements of funerals were received last night:

The funeral of Mr. P. H. Aylett will take place this afternoon at 5½ o'clock from St. Paul's church.

The funeral of Captain W. A. Charters will take place to-morrow (Friday) from Dr. Hoge's church, at four o'clock.

The funeral of Dr. J. B. Brock will take place to-morrow (Friday) from St. James' church, at 10½ o'clock. [The pall bearers appointed are W. E. Tanner, J. A. Scott, A. Ordway, J. E. Tyler, W. S. Gilman, W. H. Wade, P. Weisiger, Frank D. Cunningham, T. H. Wynne, W. P. Gretter.]

The funeral of Powhatan Roberts will take place this afternoon from the Monumental church at four o'clock.

OTHER ANNOUNCEMENTS.

In consequence of the sad accident at the State Capitol in this city yesterday, the depot and workshops of this company will be closed to-day. THOS. DODAMEAD, Supt.

On account of the terrible calamity at the Capitol yesterday, the private theatricals to have taken place at Virginia Hall to-night have been indefinitely postponed. The tickets will be redeemed at Messrs. West & Johnston's, and Geo L. Bidgood's.

ART. XV.—AGRICULTURAL DEPARTMENT.

THE WOOL PRODUCTION OF THE WORLD.

Great Britain and Ireland	260,000,000	Cananda	12,000,000
France	126,000,000	North Mexico	500,000
Germany, Netherlands, Belgium	198,500,000	North Africa	50,000,000
Portugal	17,000,000	Asiatic Turkey	100,000,000
Spain	62,000,000	Persia	50,000,000
Italy	40,000,000	Asiatic Russia	60,000,000
Switzerland	2,000,000	The rest of Asia	260,000,000
Greece	8,000,000	Australia	114,000,000
European Turkey	43,000,000	Cape of Good Hope	20,000,000
European Russia	125,500,000	South America	110,000,000
Sweden and Norway	11,000,000		
Denmark	2,800,000	Total	1,772,300,000
United States of America	100,000,000		

The imports of foreign wool into the United States were, in 1869, 42,710,812 pounds; in 1868, 23,106,752; in 1867, 30,870,309; in 1866, 56,862,284.

SHEEP IN VARIOUS COUNTRIES.

United Kingdom	35,600,000	Holland	1,070,000
Russia	45,400,000	Belgium	580,000
Sweden	1,650,000	France	33,280,000
Norway	1,700,000	Spain	23,050,000
Denmark	1,900,000	Italy	11,040,000
Prussia	22,260,000	Austria	16,570,000
Wurtemburg	650,000	Switzerland	440,000
Bavaria	2,050,000	Australia	15,000,000
Saxony	500,000	United States	33,000,000

The returns of the wool clip for this season have just been made, from which we ascertain that the entire number of sheep in the United States is 33,000,000. One-half of these are kept in seven States; Ohio taking the lead, and producing nearly one-sixth of all the wool in the country. Michigan shows third in the list, and this is all the more gratifying as it is only within a few years that her farmers have turned their attention to sheep raising. The total number in the principal wool-growing States are as follows:

Ohio	6,730,126	Indiana	2,882,176
New York	3,676,824	Illinois	2,736,431
Michigan	3,948,191	Iowa	2,201,360
Pensylvania	3,442,002		

Wool and Worsted Manufactures.—The annual value of the wool manufactures of the United States, and of those manufactures in which wool is a component part, is said to be not less than $175,000,000. Of these goods more than four-fifths are made from American wools. The coarse carpet wools, which are not grown here at all, the worsted combing wools, and the fine clothing wools which are only grown by us in limited quantities, go to make up the rest.

The annual consumption of woolen goods in the United States is estimated to equal $240,000,000. In 1868 more than fifteen million dollars were spent by us for imported dress goods; while for imported cassimeres we paid out nearly seven million dollars.

The value of the worsted manufacture of England probably exceeds one hundred million dollars. It was ninety millions in 1857, and has since largely increased.

The following facts and figures exhibit the statistics of woolen manufactures in the Northwestern States in 1868:

No. of establishments.	No. of sets.	Amount of capital.	Value of material.	Cost of labor.
States.				
Ohio	172	344	$1,892,000	Returns incomplete.
Michigan	49	74	412,500	
Indiana	126	262	1,441,000	
Illinois	80	120	660,000	$330,000	$135,600
Wisconsin	69	90	495,000	425,700	156,800
Iowa	58	87	488,500	383,900	142,400
Minnesota	12	18	99,000	34,000	8,450
Total	537	995	$5,448,000	--------	----

HOUSEHOLD HELPS.

Slicing is one of those dainty operations in which few excel. Witness the fearful gashed and haggled loaves, where Jones, Brown and Robinson are each allowed to exercise their skill, or awkwardness, on the bread. To obviate this, the exhaustless ingenuity of the age steps in with a remedy.

The Slice Guard, which is a "cute" little attachment to the carving or bread-knife, enables any one to slice turkey-breast for a delicate lady. It will even help an elderly gentleman to cut a pigeon-wing.

The Bread Slicer guages the intended slices to any required thickness and cuts a dozen of them at a time. A loaf becomes an elegant thing by this process and crustiness loses its terrors.

The Rotary Potato Masher—not such as is brandished at Donnybrook Fair,—receives your boiled potatoes in a tin vessel, the lid of which is then shut down. You turn a handle two or three times and there are the potatoes, mashed as fine as curdled cream.

The Eccentric Masher serves either potatoes or turnips in the same way with a whirl or two of inside machinery, and does it to perfection.

The Triturating Strainer pulps and strains, at the same time, any kind of softened meat or vegetable, without a hair sieve or "tammy cloth."

Milk and eggs are ticklish things to deal with. The former has often too great a tendency to run to brains—not a common fault in other things, by the way—and the latter are frequently "too full of life."

The Milk Testerat once tells you the quality of your milk by its specific gravity.

The Milk Saver will boil milk without letting it run over—an admirable peculiarity. Would that we could apply it to tempers!

The Egg Tester detects the presence of a surreptitious passenger or of any cloudy condition of contents in eggs by reflecting the light through and through them. "Bad eggs," shelly or human may be detected in this way.

The Whisk Machine whisks eggs or milk or any sort of fluid into foam in a jiffy. It is curious described as "a small churn with revolving vertical gridirons instead of arms or blades," and can be used in the household or by soap boilers, pomade makers, pastry cooks and confectioners, as well as by private families.

The Egg beater is more familiar. but it now comes up in many new and very grotesque, but serviceable forms.

The Family Flour-Mill may be set in a corner and will produce four finenesses of flour or meal with the bran, with a few turns of the handle.

The Kneading Machine receives the flour and fluids in a close box; then shut down the lid, turn a winch and "your cake" is literally "dough." This saves all that fearful wheezing and overdrip of perspiration to which the kneady men of baker shops are *strongly* addicted.

The Bread Making Machine goes through the whole process. Revolving knives and rollers make the dough. There is no waste, dust or dirt, and some of these articles tilt up and pour the dough out, of themselves, when wanted.

The Domestic Oven can be hung up in front of the kitchen fire like a thin kitchen and will bake as many pounds of bread as may be desired. It has a reflector and revolves by simple machinery.

The Table Butter Churn is a glass cylinder containing some pretty metallic wheel work which you may set upon the breakfast waiter and make fresh butter as you mix your coffee. Some of these are small enough to hold only one quart of cream. The fresh *butter-milk* is one of of its chief bestowals.

The Counter Current Churn is like the above, but *aerates* the product, and will make good butter from cream in five, and from milk in ten minutes.

The Butter Press obviates the necessity of kneading butter with the hands and will sweeten over-salted and even tainted butter.

The Butter Purifier is a similar invention for like purposes. Butter "strong enough to help itself," isuade to lay aside all idle ambition and descend to its proper level by these valuable little "notions."

AMERICAN SUMAC.

A recent item which we published in a previous number about American Sumac has attracted so much attention and called forth so many inquiries about it, that in our present issue, although the subject is out of our line, we venture to give some additional information elsewhere, and to add the following :

The leaves are the only part of the plant used. They are gathered in the fall of the year, taken to the mills, ground to a fine powder, sacked and then sent to market. The sacks are about the size of coffee bags and contain about 160 pounds.

The American article known best in this market, comes mostly from Virginia. That gathered in this State and New Jersey is not so highly esteemed. As it has a wide range, and grows so luxuriantly in all the Southern States, it is quite likely that the yield from others of them would be, if necessary, quite as large and of as fine a quality as that gathered in Virginia. There are three mills, located in Virginia respectively at Lynchburg, Petersburg and Richmond. The leaves in their natural state are worth about fifty dollars per ton at the mills. They are too bulky to bear long transportation before being ground, and therefore the nearer a mill the better for the gatherer. The jobbing price for the American Sumac in New York is about ninety dollars per ton.

There are two qualities of Sicily Sumac found in this market. The finest is worth about one hundred and seventy-five dollars per ton. The inferior quality has been almost entirely displaced by the American, and is very slow of sale at greatly reduced rates.

The quantity produced this year in Virginia is much greater than ever before, but will not probably reach more than three thousand tons. The actual consumption of sumac in this country is about so much every year, and does not grow very rapidly, hence the limit of demand for home consumption for the American article will probably be the amount of second quality. Sicily heretofore used, at least until the dyers become convinced that the American will answer their purposes as well as the finest grades of Sicily. But an export demand may be created, and then the production might be profitably carried to a much greater extent.

Sumac has two principal uses in the arts, viz: for tanning and for dyeing. The tanners use it in tanning their finest qualities of sheepskins, and for white goods, moroccos, etc. They cannot make an exclusive application of the American article on account of its staining too much, and feel compelled to use the Sicily; but improved care in preparing it for the market may greatly overcome this objection. The dyers use it, especially in the print works, for preparing their mordants. We are told that the New York Dye and Print Works in Duane street in this city find the American article to answer their purposes quite as well as the Sicily, and it may be that others will, after a while, come to the same conclusion.

The only apology we will offer our readers for thus introducing to their attention this subject is that, apart from the many inquiries made of us, we have a large constituency, even among grocers, who will be interested in knowing how this valuable American product may be utilized.—*The American Grocer.*

NEW VARIETY OF COTTON.—Some German gentlemen in Texas has selected and separated from his crop the seed of a new variety of cotton, which is more known under the name of Bohemian. It is claimed for this cotton, that it runs less to weed and more to lint, that it will stand longer in the field, because not so much exposed in the boll, as other cotton, and that it produces the best poor land cotton that can be grown.

ART. XVI.—NEW ORLEANS MONTHLY MARKET REPORT.

COTTON.—The market has exhibited a fair degree of animation during the past month, and the variation in prices have been but slight. The gross receipts since 1st September, 1869, foot up 1,103,000 bales, and the sales have been about 1,050,000 bales. The total receipts since 1st April have been 111,416 bales, and the sales for the same time 115,250 bales. Our market closes steady at the following rates:

	May 6.	Last Year.
Ordinary	17 @ 18¼	25 @ 25½
Good Ordinary	20¼@ 20⅝	26¼@ 26¾
Low Middling	21 @ 21⅜	27¼@ 27½
Middling	21¾@ 22	28¼@ —

LIVERPOOL QUOTATIONS.

Middling Uplands	10⅞d@ —	11⅝@11¾d
Middling Orleans	11⅛ @11¼d	12 @ —
Freight to Liverpool	13-32@ —	5-16@ —
Sterling Exchange	124½@125	148⅝@149¼

COTTON STATEMENT.

		All U. S. Ports.	N. O.
Stock 1st September, 1869—bales		10,974	689
Receipts overland by Spinners best	200 000		
Receipts	2,546,987	2,746,987	1,102,885
		2,757,961	1,103,574
Exported	1,763,212		
Taken by Northern manufacturers	689,154	2,452,366	961,639
Stock not cleared May 5th		305,595	141,935

TOBACCO.—There is a fair demand, and prices are steady. The receipts for the past five weeks have been 4,300 hhds., and the sales for the same time foot up 3,400 hhds. Reports from the interior markets show a gradual advance, and holders are quite firm at the following quotations.

	LIGHT.	HEAVY.
Sound Lugs	7½@ 8½	8 @ 9½c.
Common Leaf	8½@ 9¾	9¾@10½c.
Medium	9½@10¾	10¾@11 c.
Good	10½@10¾	11 @11½c.
Fine	11 @11¾	11¾@12½c.
Choice Selections	12 @14	12½@14½c.
Fine Wrapper		16 @25 c.

NEW ORLEANS TOBACCO STATEMENT.

Stock 1st September, 1869—hhds.	7,421	
Received since	8,990	
		16,411
Taken for city consumption, &c.	1,035	
Exported	6,502	7,536
Stock not cleared, May 6th		8,874

SUGAR AND MOLASSES.—There is a fair demand with only moderate receipts. The annual statement of the Louisiana crop, just published, shows a total of 87,090 hhds. sugar, against 84,256 hhds. last year; of which 76,794 hhds. have been received at this port, against 72,630 hhds. same time last year. The receipts of Molasses have been 132,395 bbls. this season; against 143,125 last year. Prices are firm at the following rates: *Sugar.*—Inferior 7@8c; Common 8¼@9¼c; Fair 9¼@10c; Fully Fair 10¼@11c; Prime 11¼@11¾c; Choice 11¾@12c; Yellow Clarified 11¾@22¼c; White Clarified 12¾@13c ₰ lb. *Molasses*—Inferior Fermenting 30@40c; Good Fermenting 60@65c; Plantation Reboiled 60@75c; City Refined 50@75c; Golden Syrup $1 ₰ gallon.

COFFEE.—There is a fair demand, with a stock of only 7,000 bags in first and second hands. We quote: (gold duty paid), 16¼@18c. for fair to prime.

LOUISIANA RICE.—The crop of 1869 foots up 100,748 barrels, (of 200 pounds each,) against 68,915 bbls. the previous year. The receipts are moderate, and the demand fair. We quote prime to choice at 6¼@8 cents per pound.

PROVISIONS.—Stocks are light, with a moderate demand. Mess Pork is selling at $30 50 to $31 50 per barrel. Bacon Sides at 17¾ to 18¼c. per pound. Shoulders, 13¾ to 13¼; dry salt meats at 12¾ for shoulders, and 14¼ for sides. Lard 19@19¼c. in kegs, and 16¼@16½c. per pound in tierces.

TEXAS BEEF is in light supply, with a fair local demand. We quote choice extra mess $13 50@$15 per barrel, and $18 to 20 per tierce.

SALT.—The demand is fair and prices are steady. The Dealers are selling Liverpool Coarse at $1 50@$1 55; Fine $1 65@$1 70 per sack.

LOUISIANA ROCK SALT—Is in fair supply and moderate demand at $16 ℔ ton in sacks.

HIDES, TALLOW AND HORNS.—The market for Hides is very quiet, and prices are only nominal. Steer Hides, city slaughter, over 85 pounds, are quoted at 7¼@7½; do. over 80 pounds, 7¼@7¾; over 60 pounds, Cows and light Steers 7¼@8c; 70 to 84 pounds, 6¾@7c; do. under 70 pounds, 7@7¼c. Cow Hides, as they run, 7¼@7¾c. Kips, 20 to 24 pounds, 10@11c.; Kips, 25 to 30 pounds, 10@11c. Calf Skins, each, 75@$1. Country Hides, Flint, 10 to 25 pounds, 14@16 ℔ lb; do. damaged, half price. Ox horns, 4 to 6c. each. Tallow, good demand, 9¼@9¾c. ℔ lb.

BROOM CORN.—All the light receipts are readily taken up at $200@250 ℔ ton, for Ordinary to Good, and $285@300 for Extra Fine. 15th May.

EDITORIAL.

THE LABOR QUESTION.

A correspondent of the Southern Index, speaking of Burleson County, Texas, says:

"Migration is pouring in in a perfect stream, and many have to go farther on account of the impossibility of procuring dwelling houses, the season being too far advanced to permit of their delaying to build. Land is rapidly rising in price, averaging from five to twenty dollars per acre, for uplands, according to quality and improvements. Bottom lands are not in such favor. From the best information I can gather scarcely an improved place in the county will be idle this year, and in many places the negro quarters will be occupied by families who have been driven from comfortable homes in the older States by the failure of successive crops, which has in some instances forced them to flee from the starvation that for the first time has looked them in the face. Alabama and Mississippi seem to be most largely represented in the long procession of immigrants which crowd every train to its utmost capacity, and whiten every road with their wagon sheets. "'Tis an ill wind that blows nobody any good;" if they must be driven away from their homes we gladly welcome them to our Empire State, well satisfied her bounteous

soil will yield to their steady labor rich fruits, which will soon cause them to forget the homes which cast them out.

The enormous influx of immigrants has raised the price of both corn and meat, the latter of which seems to be rather scarce. This will create a home market for beef, for it has been the boast of Texas that there was no hungry man in her borders.

By far the greater proportion of immigrants go farther up the country, into the wheat section. Much of this section bids fair to produce good crops of cotton, and suffers less from the worms than the coast tier of counties."

We never take to ourselves the merit of having caused any movement of public interest, but we indulge a pardonable pleasure when we have foreseen its advantages and urged its adoption. Devoted to the interests of the people of the South, we did not hesitate to oppose the movement for the importation of Asiatic labor. The common sense of the planters led them to the same conclusion with ourselves, though but comparatively few of them read what we had written. We are now sustained by facts in the opinions which we advanced. The labor immigration is reopened from the old Atlantic States to the South, while immigrants are coming from the North-West. There will be 20,000 laborers from Virginia this year. Our information is that 13,000 laborers are computed to have passed over the Virginia & Tennessee Rail Road alone. Now the planters must organize this immigration! They must send agents to the old States to solicit immigration; but they must not send all white men, they should pick out in each neighborhood one or more respectable colored men, who have immigrated in past years from the Atlantic States, and have lived and cultivated the staple crop here. These men must go to the community where they were born, and recruit among those who know them. A colored man will believe more that such a missionary will tell him than if the same facts were communicated by a white man. If the Southern Atlantic States are canvassed perfectly, an adequate amount of labor can be transferred to the South without impairing materially the price of the Staple crops. The freedman labor is at last the best, except that of the white man who comes to settle permanently in the South. We have

got to live in the same community with the colored race and had as well acquire their confidence and become their advisers at once. There is another source of labor supply. Our friends of the interior West have long known the political and pecuniary value of importing ready made white people. We promote their own interests, they have permitted terrible misrepresentation, of the health, order, station and compensation of the laborer. We cannot meet this organized appeal to Northern Europe, upon the spot where it is made. Our North-Western Rail Road Companies and other land holders have the dead wood on us in Europe. Now suppose after they should have been at the expense of bringing the European immigration into the port of New York and into the great Western Cities, that we send our missionaries—not to Copenhagen or Bremen or Dublin—but to Chicago, St. Louis, Cincinnati and Dubuque. Let us say, gentlemen immigrants, you are now in the United States free to go where you choose. If it is winter you can earn little or no wages until Spring. We have a land of much milder climate. We grow oranges and sugar, and tobacco and cotton. While this country is covered with snow, and men and cattle have to subsist for three months upon the labor of the other nine months, our fields are open, our crop is ripe and ready for the harvest. We need laborers. We will pay you wages to pick cotton, roll sugar, or cut wood from September to April—nay we will do more: we will give you a Rail Road or river Excursion ticket to visit Alabama or Louisiana and return at the expiration of your labor contract. You have no fear of your health in the winter. You will escape the cost of three months of inaction, and return with three months wages in your pockets, *ready for planting corn in Illinois or Iowa.* Perhaps the immigrant who makes this excursion may remain as a permanent citizen. He will at least have an opportunity to test and report the correctness of those representatives against the South which term the immigration gave us.

The Rail Roads of the South have a duty to perform to the public. They have been built in great part by public funds, and should be managed for the public interests. They now run empty trains in good part, during the period when this immigration would come South. It would carry this immigrant labor at one cent a mile

for it costs no perceptible sum more to run a train fully than partially loaded. These laborers are like the fertilizer which all well regulated roads favor so highly. They will produce weights which the Rail Roads will carry. A laborer going into upper Mississippi may make five bales of cotton which the Rail Road could not haul unless he went there to make it.

The Rail Road Companies should therefore co-operate with the planters, and the public authorities can better appropriate money to bring home labor than to send for it to foreign countries. With such concert and compensation the surplus labor in one part of the Union can be transported to supply the deficient labor in another. The whole planting public is on the move, and requires nothing from the press except suggestions of organization. We should like to see a committee of planters in New Orleans at the grand fair, to debate on this and other subjects of importance.

Victor Cane Mill and Cook's Sugar Evaporator Enlarged.—That extensive and enterprising establishment, Blymer, Norton & Co., Cincinnati, having found by a practical experience in the manufacture of their Cane Mill and Evaporator for the last three years that they were admirably adapted to the economy of small plantations, have so far enlarged their Mill and Trains from a capacity of four hogsheads, to six, eight, and ten hogsheads. They have already placed those larger Mills on several sugar plantations in Louisiana and in Texas. These Evaporators have a capacity of producing six hogsheads in twenty-four hours. A Mill and Train of similar power was exhibited at the late fair in this city, by their intelligent and energetic agent, Mr. B. C. Fearing, and received the attentions of some of our best sugar planters. The economy of labor, of fuel, and the perfect granulation effected by this process, renders it especially valuable to our small planters. We are authorized to say that Messrs. Blymer & Norton will furnish catalogues with cuts descriptive of the Mills and Evaporators on application to their House in Cincinnati.

Acknowledgments.—To Hon. W. P. Kellogg, for reports of commissioners from the U. S. to the Paris Universal Exposition. Report special commissioner upon the industry of the U. S.

To committee of the Pelican Division Sons of Temperance, for invitation to anniversary celebration.

To Directors of Mound City Insurance Co., for invitation to entertainment on change of office to 33 Carondelet street.

To L. Bouchereau, for a copy of his census of the Sugar Planters and their products. We commend this admirable and accurate report to planters and merchants.

DE BOW'S
SOUTHERN AND WESTERN BUSINESS DIRECTORY.

INDEX.

Manufacturers.
John Ralston & Co
H. Dudley Coleman
Raoul Sons & Wadley
Empire Sewing Machine Co.
Sampson Brothers
Owens, Lane, Dyer & Co
Lane & Bodley
W. D. Andrews & Bros
Blymer, Norton & Co.
Frear Stone, Maunfacturing Co
Arion Piano Forte Co,
Edmund M. Ivens & Co
G. D. Bustamante
W. L. Buckingham
St. Louis Lead and Oil Co
M. S. Hedrick
Arrow Tie
Major & Knapp manuf'g Co
Agricultural,
Pacific Guano Co
Stern's Raw bone Super-Phosphate.
Zell's Am'ted Bone Super-Phosphate.
Marshall J. Smith & Co.
Davant, Waples & Co
Grain Drill
Lands for Sale
Insurance.
St. Louis Mutual Life Ins. Co
Ætna Insurance Co
State Co. of Nashville
Globe Mutual Life Co
Hardware, Cutlery, etc.
Orgill Bros. & Co.
A. G. Rogers & Co
Education.
University of Virginia
Washington College
Louisiana State Seminary
Greene Springs School
Education.
University of South Carolina
Longwood Female Academy
J. M. Saunders' School for boys
Virginia Military Institute
Louis Schwartz
Christian & Hyatt
Blackmar's Music Store
Clothing and Furnishing Goods.
Taylor, McElroy & Co
S. N. Moody
A. Brousseau & Co
Miscellaneous.
Puroline Gas Light Co
Joseph B. Daley
J. T. Tucker
Commission Merchants and Factors.
Gaillard & Minott
C. J. Leveque
Porter, Page & Co
Brokers and Bankers.
Wheeless & Pratt
Samuel Smith & Co
Wm. R. Utley & Co
Townsend & Co
Hope & Co
Towsend and Lyman
J. E. Lanphier
Grocers.
J. Avet
Jewelry, watches, etc.
A. B. Griswold & Co
B. Piffet
J. Douglas
Hotels.
Battle House
Washington Hotel
Patent Medicines
Dr. Simmon's Regulators
Constitution Renovator

THE ARION

PIANO-FORTE COMPANY,

Organized under the Manufacturing Laws of the

STATE OF NEW YORK,

INCORPORATED MARCH 31st, 1870.

CHAS. H. COVELL, President. J. B. SIMPSON. Jr., Sec'y and Treas. GEO. C. MANNER, Supt. of Manufactory.

Manufactory: 187 & 189 Bowery.

Warerooms: 554 Broadway,

NEW YORK CITY.

—0—

PATENT ARION REVERSED WOODEN AGRAFFE,

Is the Patent Arion Reversed wooden Bridge, or Agraffe, which is held immovably in its place, (just back of, and extending over the hammer line,) by a hollow iron bar cast with the iron frame, which contains the Arion Reversed Wooden Bridge, under which the wires pass, thus the blow of the hammer forces the strings more solidly up against their resting place, and they give forth that prolonged continuation of sound, so much like the human voice, and which supports a singer so exceedingly well, and when forced by hard playing you obtain a larger, purer volume of musical sound,

WITHOUT THE LEAST ALTERATION OF ITS CHARACTER;

neither can a hard blow overstrain or break the strings of an "Arion." Thus we retain all the sweetness and purity of the Wooden Bridge, and obtain all the solid firmness of tone of the metal Agraffe, (when it is new) without one of its many objections. Many manufacturers compromise with their difficulties by using the metal Agraffe in only three upper Octaves. The

ARION WOODEN AGRAFFE

EXTENDS THROUGHOUT AND WE RETAIN AND USE THE SIMPLE

FRENCH DAMPER ACTION WITH IT.

PRICE LIST.

No. 1.—7 1-3 Octaves. Same style case as No. 2, with octagon legs.....$540

No. 2.—7 1-3 Octaves. Rosewood. Front round corners, moulding on the plinth, bevelled top, carved legs, carved lyre and scroll desk.....$560

No. 3.—7 1-3 Octaves. Same as No. 2, with four round corners.....$650

No. 4.—7 1-3 Octaves. Rosewood. Front corners large round, moulding on plinth, serpentine base, carved legs, bevelled top, scroll desk and carved lyre.....$600

No. 5.—7 1-3 Octaves. Same as No. 4, with four round corners.....$675

No. 6.—7 1-3 Octaves. Rosewood. Front corners large round, heavy mouldings on case, serpentine base, carved legs, bevelled top, scroll desk and carved lyre.....$650

No. 8.—7 1-3 Octaves. Rosewood. Four round corners, heavy mouldings on case, serpentine base, carved legs, bevelled top, scroll desk and carved lyre.....$750

No. 9.—7 1-3 Octaves. Rosewood. Four round corners, rich fancy mouldings on plinth and on body of case, and serpentine base, extra carved legs, bevelled top, scroll desk and carved lyre.....$850

No. 10.—7 1-3 Octaves. Rosewood. Four large round corners, rich carved mouldings in ebony, inlaid with gold or colors; on plinth and body of case, serpentine base, elaborately carved legs and lyre, bevelled top and scroll desk. (The rosewood for this style especially selected from the heart of the log.) Richly finished.....$1000